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Report of the

WORKSHOP ON THE ROLE OF FINANCIAL INSTITUTIONS IN STRENGTHENING NATIONAL FISHERIES INDUSTRIES AND PRIVATIZATION OF FISHERIES INVESTMENT IN SMALL ISLAND DEVELOPING STATES

Port of Spain, Trinidad and Tobago, 24-28 June 1996

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PREPARATION OF THIS DOCUMENT

This is the report of the Workshop on the Role of Financial Institutions in Strengthening National Fisheries Industries and Privatization of Fisheries Investment in Small Island Developing States (SIDS). The Workshop was held in Port of Spain, Trinidad and Tobago, from 24 to 28 June 1996.

The report comprises a record of the proceedings of the Workshop, concluding with the recommendations and follow-up proposals of the working groups. The appendixes of the report comprise the programme of the Workshop, list of participants, list of publications and lecture notes circulated during the Workshop, and selected papers as presented at the Workshop by the authors.

The report was prepared by Dr. U. Tietze, Fishery Industry Officer, Fishing Technology Service, Fishery Industries Division, FAO Fisheries Department, Rome.

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ABSTRACT

This is the report of the proceedings of the Workshop on the Role of Financial Institutions in Strengthening National Fisheries Industries and Privatization of Fisheries Investment in Small Island Developing States (SIDS), held in Port of Spain, Trinidad and Tobago, from 24 to 28 June 1996.

The Workshop was organized by the FAO Fishery Industries Division in co-operation with the FAO Regional Office for Latin America and the Caribbean (RLC). It was hosted by the Government of Trinidad and Tobago.

The Workshop was attended by 39 participants from 12 Caribbean countries and from regional organizations and development agencies. The participants represented national fisheries administrations, financial institutions, fishermen associations, institutes, fisheries enterprises as well as bi- and multi-lateral development agencies.

The main issues which were addressed by the Workshop include the privatization of fisheries enterprises, a better utilization and innovative processing and marketing of aquatic products, the introduction of fisheries management measures and related activities such as the restructuring of fishing fleets, the diversification of fishing effort, the creation of alternative employment opportunities, the development of aquaculture and the introduction of appropriate credit support services.

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1. BACKGROUND AND OBJECTIVES

In the past, for various reasons, the development potential of the fisheries sector of many Small Island Developing States (SIDS) in the Caribbean has not been fully realized. Over the last few years, however, a fast growing demand for fish to meet the nutritional needs of a rapidly growing domestic population as well as a growing demand for aquatic products from consumers abroad have made the enhancement of existing fisheries industries and the establishment of new fisheries industries an urgent task.

While in previous years the emphasis in many countries of the region has been on fish capture, it has now been recognized that most aquatic resources in the region are heavily exploited and even over-exploited, and fisheries management measures are presently being introduced in the region in order to ensure a sustainable use of aquatic resources and to protect the coastal environment. In the context of the introduction of fisheries management measures, fishing fleets will have to be restructured and fishing effort diversified.

With a view to making better use of limited resources, many countries in the region are placing more emphasis on processing and marketing of aquatic products as well as on the introduction of aquaculture. New fisheries industries should be created if these activities are to be introduced successfully.

Presently, at the same time as when the fisheries sector has to encounter new challenges, the Small Island Developing States (SIDS) in the Caribbean are undergoing structural adjustment programmes in the context of which government and public sector support to the fisheries sector is being reviewed and in many cases subsequently reduced. Fishing fleets, fish processing facilities and fisheries enterprises are being privatized and support services for the fisheries sector, including financial services, are undergoing important changes.

Against the above background, the Workshop on the Role of Financial Institutions in Strengthening National Fisheries Industries and Privatization of Fisheries Investment in Small Island Developing States (SIDS) aimed at providing an opportunity for fisheries administrators and scientists, representatives of fisheries industries and financial institutions to discuss how Small Island Developing States (SIDS) in the Caribbean can meet the above challenges, take advantage of new development opportunities and make better and sustainable use of their aquatic resources.

The main issues which were addressed by the workshop included the privatization of fisheries enterprises, a better utilization and innovative processing and marketing of aquatic products, the introduction of fisheries management measures and related activities such as restructuring of fishing fleets, diversification of fishing effort, creation of alternative employment opportunities as well as the development of aquaculture.

2. ATTENDANCE

The workshop was attended by 39 participants from 12 Caribbean countries, i.e. Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, and by participants from Cape Verde and regional organizations and development agencies such as the Japan International Co-operation Agency (JICA) and the Asia Pacific Rural and Agricultural Credit Association (APRACA).

The participants came from national fisheries administrations, financial institutions and their associations, fishermen's associations, institutes, fisheries enterprises, as well as from bi-lateral and multi-lateral development agencies. The list of participants in the workshop is shown as Appendix B.

3. PROCEEDINGS

3.1 Opening Ceremony

The opening ceremony commenced with opening remarks by Mr. Mervyn La Croix, Director, Fisheries Division, Ministry of Agriculture, Land and Marine Resources, Trinidad and Tobago and was followed by an address by Mr. B. Chakalall, FAO Regional Fisheries Officer and FAO Representative a.i. in Trinidad and Tobago.

Dr. U. Tietze, Fishery Industry Officer, delivered an address on behalf of FAO, and an opening address by Mr. Winston Gibson, Director, Regional Administration North and Acting Permanent Secretary in the Ministry of Agriculture, Land and Marine Resources of Trinidad and Tobago complemented the programme of the opening session. The text of Mr. Gibson's opening address is shown as Appendix F.

3.2 Working Sessions

3.2.1 Introduction to Workshop and Organizational Arrangements

The session was chaired by Mr. M. La Croix of Trinidad and Tobago. In an introductory session, Mr. B. Chakalall, FAO Regional Fisheries Officer, explained the programme of the workshop and gave an overview of the documents and papers which had been prepared for the workshop. He informed the participants of the organizational and administrative arrangements and responded to participants' queries. A few modifications were made to the originally proposed programme to better accommodate the various speakers according to their convenience and availability.

The programme was adopted and is shown as Appendix A. The list of documents distributed at the workshop is shown as Appendix C.

3.2.2 FAO's Programme for Assistance to SIDS

The presentation was made by Dr. D. J. Doulman Senior Fishery Liaison Officer, FAO, Rome. Mr. La Croix continued to chair this session.

Dr. Doulman provided an overview of FAO's Programme of Fisheries Assistance to Small Island Developing States (SIDS) and pointed out that the Programme, which is in its final stages of elaboration, is global in nature, and covers six areas: institutional strengthening and national capacity building; enhanced conservation and management of EEZ fisheries; improved post-harvesting fish management and marketing; safety at sea; strengthening the economic role of national fisheries industries and the privatization of fisheries investments; and aquaculture and inland fisheries conservation, management and development.

Mr. Doulman explained that the Programme, when finalized and costed, would be submitted to the international donor community for consideration and support. When operational, the Programme would provide technical assistance to Small Island Developing States (SIDS), on a request basis, within the six areas covered by the Programme. He was further explained that the Programme would be used as a vehicle to assist SIDS implement the Code of Conduct for Responsible Fisheries. A progress report on the status of the implementation of the Programme would be made to the Twenty-second Session of the Committee on Fisheries (COFI) in March 1977.

Following the presentation, a number of important issues were raised concerning the Programme. With respect to funding, it was pointed out that the initial phase of the Programme would probably be for a period of three years. However, at this stage it was not possible to indicate what level of funding might be forth-coming from donors. It was noted that since the Programme would be almost entirely funded from extra-budgetary sources, the level of activity under the Programme and its duration would depend, to a very large extent, on donor response .

Queries were raised as to the scope and nature of activities that might be funded under the Programme. It was reiterated that in 1995 COFI had favoured a tight focus for the Programme and had therefore agreed on the six areas indicated above. In principle, requests for technical assistance under any of these six areas could be considered once the Programme was operational. In this connection, it was explained that technical assistance could extend to assisting SIDS develop projects that could lead to down-stream investment. All SIDS (as determined by their membership of AOSIS) that are FAO members would be eligible to secure technical assistance under the Programme.

Recognizing that SIDS in different areas of the world have different needs and priorities, it was advised that the Programme's six areas of assistance had not been prioritized. Mr. Doulman said that the Programme provided for TCDC exchanges, in line with FAO policy. To avoid duplication of effort, and to ensure co-ordination with on-going regional initiatives and activities, FAO would seek to work closely with regional and other appropriate institutions in implementing the Programme.

Dr. Doulman went on to say that COFI would be the main vehicle for assessing and reviewing the performance of the Programme. In addition, regional SIDS' meetings could provide input to guide and enhance implementational aspects of the Programme. In the event of a favourable response from donors to the Programme, it was possible that it could be operational as early as mid-1997.

The Chairperson of the session provided a concise summary of the discussions on this item and expressed gratitude to FAO for the initiative it had taken in elaborating the Programme.

Dr. Doulman's paper is shown in Appendix F.

3.2.3 Promotion of Sustainable Capture Fisheries and Aquaculture Practices

3.2.3.1 The Status of Aquatic Resources and Fisheries Management in the Caribbean

The session was chaired by Mr. Boris Fabres of St. Vincent and the Grenadines. The presentation was made by Mr. B. Chakalall, Regional Fisheries Officer and FAO Representative a.i. in Trinidad and Tobago.

Mr. Chakalall summarized the status of the fisheries resources in the region using the categories demersal fish, pelagic fish, including large oceanic and large coastal pelagics, small pelagics, crustaceans and molluscs. Despite limitations of available data, there was sufficient information to indicate that most stocks were being fully exploited or at the point of being over-fished. For example, reef fish species had been flagged as fully to extremely over-exploited in many countries. However, with the support of CFRAMP and the OECS/NRMU efforts were being made to improve data collection. The need for stock assessment for most species was expressed.

The attention of the workshop was drawn to the growing fishery for large coastal pelagics which was in need of assessment and appropriate management since large pelagics formed the main part of fish landings of the small islands of the Caribbean. Increased landings of spiny lobster were mentioned and surprise was expressed as the resource was considered to be over-exploited in most countries. The increase was probably due to landings in the Bahamas which increased from about 1,000 mt to about 8,000 mt in the period 1970-1998. Attention needs to be given to the management of the queen conch fishery as the resource is in danger of being depleted in most Lesser Antilles countries.

Mr. Chakalall examined the process of fisheries management in the Lesser Antilles by reviewing the guiding principles for harvesting living marine resources, the legal framework, the formulation and implementation of fishery management plans, regional co-operation, data acquisition and research, the institutional capacity to manage the fisheries of the region, and monitoring, surveillance and control (MSC).

Participants presented a brief update on the fishery management process in their respective countries. With the assistance of FAO, most countries have revised their fisheries legislation, although some countries were still to enact the legislation, and others have experienced long delays in promulgating fisheries regulations. The OECS countries have adopted harmonized fisheries legislation. The participant from the OECS indicated that they were already actively seeking FAO's assistance to review the harmonized fisheries legislation vis-à-vis the UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks and the Compliance Agreement of the Code of Conduct for Responsible Fisheries.

Participants drew attention to the progress being made in the formulation of fisheries management plans. In most countries the process involved the formation of a fisheries advisory committee that advised the Minister responsible for fisheries and consulted with the resource users. Most countries had drafts of fisheries management plans in various stages of readiness. For example the participant from Barbados indicated that a public hearing on their draft fisheries management plan was scheduled for June 1996, while that of Guyana was awaiting the Minister's approval.

In their presentations the majority of participants mentioned a lack of human and financial resources to adequately manage their fisheries resources. As a result, there was very little effective management in the region. New approaches, such as co-management which was being implemented in Saint Lucia for sea urchins, were suggested.

The majority of participants favoured a regional approach to management of the fisheries resources of the region and some expressed disappointment that this had not been taken already. The OECS participant noted that there was still some reluctance to implement the common fisheries zone agreement in the OECS countries. However, OECS/NRMU was pursuing a regional approach to fisheries management.

Concern was expressed over the proportion (approximately 44 percent of reported fish landings) of the demersal catch recorded as unspecified which severely hindered interpretation of abundance trends and affected the estimation of the stocks. This concern included the catch sold in the high seas, the unrecorded landings and the under-reporting of catches which in some cases were significant. Countries lack the resources to adequately monitor and surveil their EEZs in order to detect these malpractices and to enforce their fisheries regulations.

It was stated that the discarding of fin-fish by-catch in the shrimp resources of the Guianas-Brazil region probably represents a significant portion of unreported catch. However, in recent years there has been a steady increase in landings in the unspecified category from this region. This is probably due to the increase in landings of by-catch. It was suggested that efforts should be made to increase the utilization of by-catch.

Given the title of the workshop and the links between the status of the resources, fisheries management and credit availability, it was suggested that the value in terms of dollars of the fisheries resources of the region should be determined and that mechanisms be put in place to promote closer collaboration between financing institutions and fisheries management agencies.

Mr. Chakallal's paper is included in Appendix F.

3.2.3.2 The Code of Conduct for Responsible Fisheries: Implications for Caribbean States

Mr. Fabres of CFRAMP, St. Vincent and the Grenadines continued to chair the session. The presentation was made by Dr. E. Ruckes, Senior Fishery Industry Officer (Marketing), FAO, Rome.

Dr. Ruckes described the Code of Conduct for Responsible Fisheries which is based on the principle that fisheries, including aquaculture, provide a vital source of food, employment, recreation, trade and economic well-being for people throughout the world, both for present and future generations, and should therefore be conducted in a responsible manner. The Code of Conduct sets out principles and international standards of behaviour for responsible practices with regard to all relevant aspects of fisheries as well as the interests of all those concerned with the fishery sector.

It was explained that the Code of Conduct consisted of five introductory articles, one on General Principles and six thematic articles, and although the Code is voluntary, FAO expected that its provisions would be increasingly applied to world fisheries. In order to assist countries and operators in the implementation of the Code, FAO was preparing Technical Guidelines related to the various thematic chapters with technical information considered useful for an appropriate application of the Code .

The importance of Articles 5, 7, 10 and 11 was specifically highlighted, since these provisions appeared to be of particular interest to SIDS.

Article 5 deals with "Special requirements of developing countries" aiming to implement the Code of Conduct; particularly the areas of financial and technical assistance, technology transfer, training and scientific co-operation are mentioned in the text. In order to mobilize international technical co-operation in support of developing countries, FAO has prepared and submitted to donors an Interregional Programme of Assistance to Developing Countries for the Implementation of the Code of Conduct for Responsible Fisheries which covers ten specific areas of assistance considered to be of crucial importance to developing countries.

In summarizing the contents of Article 7, "Fisheries management", several critical areas were stressed, including data gathering and management advice and the specific role of scientific evidence or information. The meeting was reminded of two FAO Fisheries technical papers on the precautionary approach in fisheries and on reference points for fisheries management which refer to aspects which are essential for successful fisheries management.

Mention was made of the link between present effective demand and future potential supply or, in other words, the pressure exerted by present national and international demand on present resource use and present resource management and the use of available supplies in the future. The question was raised whether this linkage would suggest that the trade and marketing operators should be made responsible for the resource management regime.

Regarding Article 10, "Integration of fisheries into coastal area management", it was explained that, by way of summary, the Article suggests that mechanisms be established for co-operation and co-ordination among national authorities involved in coastal area management and that authorities representing fisheries in the coastal area management process should have the appropriate technical capacities and financial resources.

In relation to Article 11, "Post-harvest practices and trade", it was stressed that the core issue of responsible fish utilization was the consumer's right to safe, wholesome and unadulterated fish and fishery products. Those involved in processing and marketing of fishery products were encouraged to reduce post-harvest losses and waste, improve the use of by-catch, and to use water and energy in an environmentally sound manner. The manufacture of value-added fishery products by developing countries should be promoted. The sections on responsible international trade and laws and regulations relating to fish trade should be seen in conjunction with the provisions of the World Trade Organisation (WTO) Agreement which establishes the responsibility and competence of WTO in the formulation of trade rules. FAO's role focused on the technical aspects of the products traded.

Policies and practices related to the promotion of international fish trade and export production should not result in environmental degradation or make an adverse impact on the nutritional rights and needs of people for whom fish is crucial to their health and well-being and for whom other comparable sources of food are not readily available or affordable. This was considered a very important policy. It stresses the need for a political decision at the national level as to the desirability of exporting fish protein in the light of the need of local consumers for such protein, and possible alternative ways of supplying it to them.

The Code of Conduct should not be considered a final product but rather a firm frame on which further evolution and updating could be built according to requirements emerging from the development of the global fishery situation in the future. For SIDS, the Code of Conduct will continue to be an important instrument for the safeguarding of their position in the international arena.

Major points referred to in the discussion were the precautionary approach and the interpretation of the precautions to be exercised, the reference points to be determined and used, and the role of scientific evidence in this context. Radical positions such as the prohibition of fishing in the absence of scientific information were warned against.

Another concern of the workshop was the enforcement of the provisions of the Code, the policing, and possibilities of sanctions. Since the Code is voluntary, there was no scope for sanctions at this stage, but two possibilities should be taken into account:

(i) Increasing international awareness could eventually lead to a remedy of undesirable situations such as illegal fishing (which contravenes Article 8.1 of the Code) because of responsibilities not only on the part of the resource owning state, but also on the part of the flag state of the infringing fishing vessel.

(ii) The Code of Conduct includes international instruments which are binding, such as the Compliance Agreement, or it is related to instruments which include coercing measures, such as the Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks.

Only a few workshop participants had had an opportunity to read the text of the Code of Conduct for Responsible Fisheries, a fact which calls for FAO action to publicize the Code at working levels in the countries and to support its application by making widely available technical information essential for proper implementation under conditions conducive to minimizing the potential for frictions between parties concerned.

Dr. Ruckes's paper is included in Appendix F.

3.2.3.3 The Role of Financial Institutions in Asia and the Pacific in Strengthening the Fisheries Sector and Privatization of Fisheries Finance

The session was chaired by Ms. J. Rawlins of Trinidad and Tobago.

In his presentation, Mr. B. Shrestha, Managing Director of the Asia Pacific Rural and Agricultural Credit Association (APRACA) Consultancy Services, Indonesia, described the role of financial institutions in promoting and strengthening the fishery sector in Asia and the Pacific as well as the changes which have occurred in the context of liberalization, privatization and deregulation.

The presentation commenced by highlighting the important role of the fisheries sector in Asia and the Pacific in contributing to GDP, providing income and employment and in meeting the nutritional needs of the population. After describing the various approaches which have been followed by financial institutions in Asia and the Pacific in financing the fisheries sector, examples from selected countries in the region were given.

It was explained that regional and global development financial institutions such as the Asian Development Bank and the World Bank, together with technical assistance projects executed by FAO, had played an important role in promoting the involvement of financial institutions in fisheries credit operations.

The presentation then focused on changes which had occurred as a result of liberalization and deregulation of financial markets and privatization of financial institutions. It was emphasized that structural adjustment and privatization programmes, if accompanied by genuine deregulation could lead to an easier access of small-scale entrepreneurs, including small-scale fisherfolk, to institutional credit.

Among the new approaches which were being pursued to minimize risk and to increase efficiency and cost-effectiveness of lending operations, group lending programmes and co-operation with self-help groups and non-governmental organizations were highlighted. Attention was drawn to the fact that regional co-operation among financial institutions in the field of rural finance and fisheries finance was very important and that APRACA was in the process of establishing a fisheries credit support services unit.

In the discussion which followed the presentation, questions were raised as to how the risk element in credit programmes for the small-scale fisheries sector was covered and what type of collateral was taken. In this context, it was mentioned by workshop participants that one of the reasons for limited access by fisherfolk to institutional credit in the Caribbean was the lack of collateral and credit-worthiness of potential borrowers.

In response to these observations, it was explained that while in the past credit programmes for the fisheries sector in the Asia and the Pacific region, in many cases, relied entirely on government-supported credit guarantee schemes, more recent approaches to fisheries and rural credit relied more on group guarantees and on generating savings which were then used as collateral.

There were other questions related to the lack of a well functioning association of agricultural credit institutions similar to APRACA, in the Caribbean. Mr. Shrestha pointed out that while he was not aware of the particular reasons for a lack of co-operation among agricultural credit institutions in the Caribbean, he was convinced that there was a need for regional co-operation and also for financial institutions to contribute from their own resources to their associations and not to rely entirely on external aid.

In response to questions regarding interest rates, the quality of loan portfolios and sources of funds for lending, it was pointed out that in most cases, financial institutions in the Asia and the Pacific region were free to set their own interest rates and that as a result market rates were usually charged. The quality of loan portfolios in lending to the fisheries sector was described as satisfactory and as having considerably improved in the process of deregulation and organization. The reasons for the improved quality of loan portfolios was seen as related to group lending approaches and to the viability of the activities which were being financed.

Another group of interventions enquired which types of groups were being financed and whether loan applications from individual fishermen and entrepreneurs were also entertained by financial institutions in Asia and the Pacific. With regard to the latter, Mr. Shrestha explained that one could distinguish three types of groups, viz. informal, non-registered groups of borrowers; semi-formal groups such as groups formed by financial institutions for the purpose of extending loans; and formal groups with a legal status such as fishermen's co-operatives. Loan applications of individual fishermen and entrepreneurs were also accepted, provided the applicant had sufficient collateral to qualify for a loan.

When summarizing the presentation and discussion, the chairperson highlighted the need for regional co-operation among development financial institutions in the Caribbean in order to improve the access of the fisheries sector, and particularly of the small-scale fisheries sector, to institutional credit.

3.2.3.4 Credit and Financial Requirements of Community-based Fisheries Management Programmes

Ms. J. Rawlins of Trinidad and Tobago continued to chair the session. The presentation was given by Dr. U. Tietze, Fishery Industry Officer, FAO, Rome.

Dr. Tietze commenced by referring to the introduction of community-based fisheries management programmes in the Caribbean and went on to describe the main advantages of these programmes when compared to top-down fisheries management approaches. One of these advantages was the creation of a political consensus between various groups of users of aquatic resources as to what the major management issues and concerns were and how they should be resolved.

He followed with a description of fisheries related investment and credit needs which included investments related to the diversification of fishing effort, introduction of coastal aquaculture and alternative employment opportunities, improved fish marketing and processing methods, and special income generating activities for women.

After identifying the factors which are responsible for the lack of access of the fisheries sector to institutional credit, a number of measures were described as to how to improve access to institutional credit and to make fisheries credit operations more effective and cost efficient.

Following a discussion of the differences between capture fisheries and agriculture and their implications for lending policies and procedures, a variety of measures which can be applied to increase the cost-efficiency and effectiveness of fisheries credit operations were described. These measures included the use of micro-computer software, developed by FAO, for monitoring of loan recovery in lending to the fisheries sector.

In the discussion following the presentation, it was suggested that in addition to technical, economic and financial aspects, social aspects should also be incorporated into fisheries credit programmes and that lending to the small-scale fisheries sector should be considered as an investment in human capital.

Regarding the role of the informal sector, it was pointed out that rotating saving and credit groups also played a beneficial role in the provision of credit to members and that fish traders in many cases provided credit at reasonable rates of interest.

Participants expressed a strong interest in using the micro-computer software developed by FAO.

Dr. Tietze's paper is included in Appendix F.

3.2.3.5 The Role of Financial Institutions in the Development of the Aquaculture Industry in the Caribbean

The session was chaired by Mr. H. Willett of Antigua and Barbuda. A paper was presented by Ms. S. Wint, Executive Director, National Commission of Science and Technology, Jamaica.

Ms. Wint commenced by drawing the attention of the participants to the fact that compared to other regions, the development of an aquaculture industry in the Caribbean is a rather recent phenomenon, notwithstanding the fact that on many islands, aquaculture has been undertaken on a small scale for many years, using imported technologies which have been adapted to local circumstances.

After elaborating the need for the development of aquaculture and the status of world aquaculture, Ms. Wint described experiences with the development of aquaculture in selected Caribbean countries, i.e. Jamaica, the Bahamas, Dominica and Puerto Rico, as well as the various stakeholders involved in the development of the industry.

The presentation went on to focus on the characteristics of aquaculture which were of particular interest to financial institutions and to identify the role which financial institutions in the Caribbean should play in the further development of the industry. Obligations of both industry and financial institutions were elaborated in great detail.

The presentation concluded that aquaculture, as a relative newcomer to the Caribbean, still faces many challenges as many countries are struggling with major economic problems which affect the ability of financiers to lend money at rates which would allow the rapid development of the industry. It was considered that in such an environment, financial institutions have a special responsibility to develop flexible credit programmes which can be adjusted to accommodate additional pressures brought on by inflation.

Ms. Wint's paper is included in Appendix F.

In the discussion following the presentation, it was stressed that an important reason for the reluctance of financial institutions to expose themselves further with regard to financing aquaculture was the lack of adequate insurance cover for aquaculture operations. It was pointed out that the lack of insurance was also perceived as a problem in other parts of the world and that FAO, in co-operation with the Government of Japan and APRACA, is organizing a conference on insurance in fisheries and aquaculture which will be held in November 1996 and which might be of interest to Caribbean countries.

Questions were raised on which role government and public sectors should play with regard to the development of aquaculture. It was suggested that the role of government and public sectors should be a catalytic one which would include the promotion of appropriate technologies and production methods as well as the provision of support services. In this context, an example from India was quoted where the National Bank for Agriculture and Rural Development had very successfully promoted shrimp and carp culture which has been taken up by the private sector on a large scale.

3.2.4 Privatization of Fisheries Enterprises, Fisheries Infrastructure and Financial Institutions

3.2.4.1 Experiences with Joint Ventures in the Fisheries Sector - an Overview

The session was chaired by Mr. W.G. Bethel of the Bahamas.

In his presentation, Dr. D. J. Doulman, Senior Fishery Liaison Officer, FAO, Rome, introduced a paper concerning the role of joint ventures (i.e. enterprises involving government as an investment partner with domestic or foreign private investors) in promoting industrial fisheries development. The paper noted that there were inherent difficulties for governments with joint venture arrangements and, as a result, it was generally preferable for governments to actively promote private sector development, utilizing statutory and discretionary instruments of a fiscal and non-fiscal nature to regulate the fisheries companies operating in the sector. However, in the event that a government opted to participate in a fisheries joint venture arrangement it would be prudent to consider alternative arrangements to conventionally structured joint ventures. Such arrangements, which have been used in other natural resource industries, could involve production sharing arrangements, fade-out agreements and equity tax conversion schemes.

In the discussion following the presentation, it was pointed out that governments do not usually have the required skills and resources to effectively supervise the operation of joint-venture arrangements and despite their stake in such ventures, governments very often became little more than "sleeping partners". For this reason, it was generally considered preferable that governments not participate in joint ventures.

If for policy or other reasons, a government opted to take up an equity position in a fisheries joint venture, it was considered essential that private partners be selected competitively from among companies/investors who had a sound track record in the industry. The need to ensure that proper checks were made of potential partners to determine their suitability was essential, and the use of the United Nations Centre for Transnational Corporations (UNCTC) and other specialist companies that provided commercial checks was proposed. Such checks could very often determine whether potential investors were *bona fide* investors with a demonstrated industry track record.

With respect to joint venture agreements, it was noted that these agreements were critical to the well-being of the venture in the long run and that they needed to be carefully and comprehensively negotiated, and be clear and easily enforceable. This was because government investment in these ventures must to be protected and risk and financial exposure for the government minimized. The effective monitoring of fisheries joint ventures was considered imperative to protect public investment.

The role of proper technical assessment in evaluating any investment in the fisheries sector was underscored, particularly if government was considering investment in a joint venture. As part of this assessment, the status of fisheries resources was a critical aspect. Measures needed to be put in place to ensure that decisions to invest, or not to invest, were predicated on realistic and complete technical assessment alone.

Participants saw little scope for the establishment of joint venture arrangements in small-scale fisheries.

Dr. Doulman's paper is included in Appendix F.

3.2.4.2 Privatization of the National Fisheries Company of Trinidad and Tobago - a Case Study

The session was chaired by Mr. H. Willett of Antigua and Barbuda.

Mr. L. Mayers, Director, Agro-based, Manufacturing and Services Sector (Investment), Ministry of Finance, Trinidad and Tobago, presented a paper outlining the rationale for, and means of achieving, the privatization in 1995 of Trinidad and Tobago's National Fisheries Company Limited. It was noted that the company was established by the government in 1972. The company enjoyed duty free exemptions on a range of imports and other privileges.

The focus of the company's activities was shrimping and shrimp processing. The company's catch was primarily marketed in North America. In the mid-eighties, it embarked upon a range of new activities including the transhipment of tuna caught by Taiwan (Province of China) longliners. These activities were largely predicated on fuel subsidies offered by the government. However, in 1992 the fuel subsidy for foreign vessels was discontinued. This decision adversely affected the operations of the company.

National Fisheries Company Limited had always been a loss-making enterprise, despite downsizing in 1990, and its operations were only possible because of government support through direct funding and credit guarantees. In 1992, a government-appointed review team recommended that the government should wind up the company. A liquidator was appointed in 1993, and in 1995 an agreement was finalized for the sale of the assets of the company for US $2.3 million to Kwo Jeng Trading Limited. The terms of the sale required the purchaser to undertake certain upgrading activities of company assets. This investment is being undertaken. The privatized company continues to focus primarily on tuna transhipment activities.

The participants appreciated the frank and detailed presentation of the privatization of the company. In discussion, it was noted that the initial feasibility study for the company's establishment was probably predicated on questionable investment assumptions. Moreover, the fisheries resources that the company was expected to exploit were not available within Trinidad and Tobago's EEZ, and the government was unable to maintain secure access to the EEZs of neighbouring countries.

The need to ensure that the assumptions underlying investment feasibility studies were accurate and realistic, and that all aspects, including marketing, were given proper attention, was stressed by participants. It was pointed out that in Jamaica, for example, a fish processing plant had been established using unrealistic raw material sourcing, marketing and price assumptions. This had led to the facility being "mothballed" since 1989.

In addition to the need for realistic feasibility studies for investment in the fisheries sector, it was agreed that a thorough understanding of the fisheries resource situation was essential and that effective working relations should be maintained between companies and those responsible for resource management.

Mr. Meyers's paper is included in Appendix F.

3.2.4.3 Adaptation of National Credit Programmes to Fisheries Management Requirements

Mr. Willett, Antigua and Barbuda, continued to chair the session.

The presentation was made by Dr. U. Tietze of FAO, Rome, who presented a case study from Sri Lanka. Dr. Tietze explained that this study provided an interesting example for Caribbean countries of how national credit programmes for the fisheries sector can be adapted to the requirements of fisheries management. It was pointed out that the macro-economic situation in Sri Lanka as well as the developments taking place in the fisheries sector of the country showed many similarities to the Caribbean region.

The economy of Sri Lanka was characterized by processes of deregulation, liberalization and privatization which had just been completed, including the financial sector, while the fisheries sector was characterized by the introduction of fisheries management measures and related changes such as the diversification of fishing effort to presently under-exploited species and areas, better utilization of aquatic resources through improved marketing and processing of aquatic products, promotion of aquaculture, etc.

The role of investment, credit and management in the National Fisheries Development Plan was described and an overview was provided on the various types of investment which were envisaged to be undertaken by the public and private sectors, respectively. It was pointed out that all investments envisaged in the plan were in support of fisheries management related measures such as the development of off-shore fishing and related shore facilities and infrastructure, value added fish processing and marketing, the creation of alternative employment opportunities, fisheries management, research and extension, and similar activities.

This was followed by an analysis of recent changes in the rural credit scenario of Sri Lanka and by a description of the role of international development finance agencies and donors which were playing an active role in support of government policies and private sector investments.

Past and on-going credit programmes for the fisheries sector in Sri Lanka were described and it was shown how these programmes had been adapted to the needs of fisheries management and how their effectiveness and cost-efficiency had been improved.

During the discussion which followed the presentation, participants noted with interest how financial institutions in Sri Lanka had adjusted themselves to the changes which had taken place in the fisheries industry and in the financial sector of the country.

The discussion then focused on the introduction of off-shore fishing in Sri Lanka's EEZ, and questions were asked as to whether any problems had been encountered while introducing off-shore fishing. In response to these queries, it was explained that two major problems had initially been encountered, i.e. the lack of an appropriate fishing vessel design to exploit the off-shore area in a technologically appropriate and at the same time cost efficient way, and the problem of overcoming the reservations of fishermen who were only used to short fishing trips to staying at sea for several days. It was concluded, however, that both problems had been resolved and that off-shore fishing was now firmly established in Sri Lanka.

3.2.4.4 Transfer of Small-scale Fisheries Infrastructure from the Public to Private Sector - the Case of Suriname

The session was chaired by Dr. P. McConney of Barbados.

Ms. N. Habieb, Fisheries Assistant, Ministry of Agriculture, Animal Husbandry and Fisheries, Suriname presented the case study. She informed the workshop participants that in Suriname there were about 110 enterprises owned by the state, including three fisheries centres and three companies which are operating under the responsibility of the Fisheries Department. A debate is presently going on in the country as to whether or not the publicly owned fisheries centres should be privatized. Sides have been taken for and against privatization by different groups participating in the public discussions. A structural adjustment programme elaborated by an international consultancy company (Coopers & Lybrand) included a proposal to privatize non-profitable enterprises, including the conversion of public utility companies to limited liability firms. However, so far no state-owned enterprise has been privatized .

In the fisheries sector, there are three fisheries centres which could be privatized should it be decided, i.e. Boskamp, Nickerie and Commewijne. In addition to these centres, the paper provides a description of the company CEVIHAS N.V. which is in operation with the task of construction and management of the fishing port in Paramaribo and to ensure regular and orderly landing and trading of fish and related activities. Whereas CEVIHAS N.V. has demonstrated that it can operate profitably, the picture of the fisheries centres is diverse, with Boskamp not yet operational (lack of water), Nickerie not operating optimally (lack of water and problems with ice-making equipment) and, by contrast, Commewijne operating self-sufficiently.

The considerations focus on the need that once privatized the centres should function commercially, that fishery co-operatives are not in a position to manage them and that private companies would have to take them over. The sales proceeds could be used by the government to establish a revolving fund in support of infrastructure facilities to be created for inland fisheries. Further investigations will be undertaken in order to facilitate decision making.

The discussion revealed that the participation of fishermen in the original design and establishment of the fisheries centres had been limited, and that financial institutions had not come into the picture yet because discussions were at an initial stage only. A takeover by fishermen's co-operatives was virtually to be excluded, also because it was very difficult for artisanal fishers to get access to credit.

The conclusion of the discussion was that the case represented another example where investment in infrastructure had gone wrong, at least for some of the centres, and that the human resources component, i.e. extension service for fishermen, was very important. Technical Co-operation between Developing Countries (TCDC) would be an appropriate approach to exchange experiences between countries of the region and to assist Suriname in approaching a viable decision.

3.2.4.5 The Financial Requirements for the Implementation of HACCP in the Suriname Fish Processing Industry

Dr. McConney, Barbados, continued to chair the session.

Mr. A. Zojindra, Fisheries Assistant, Ministry of Agriculture, Animal Husbandry and Fisheries of Suriname, presented a paper entitled, "Hazard analysis critical control points" which provides an overview of the fish processing industry in Suriname and explains principles, requirements, benefits and costs of the concept for quality assurance.

Mr. Zojindra illustrated the implications of the introduction of the HACCP approach for the fish processing industry in Suriname, particularly with regard to the role of the Fisheries Department as the regulatory agency and the financial consequences for the industry, the investments needed and the loans required for this purpose. Important limiting factors were identified and the lack of knowledge of the precise requirements of the HACCP system and the authorities of the market countries and the adjustments called for in the light of these. There was uncertainty regarding benefits which may not necessarily accrue. The lack of knowledge of bank personnel was a further impediment for the processing of loan applications. A decision as to whether the HACCP system should be expanded to cover also the artisanal sector had not yet been taken.

The expertise in the Fisheries Department for fulfilling the role of a regulatory agency was described as being limited, and therefore a training programme also covering other food items and private sector personnel had commenced, with Belgian co-operation. It was also pointed out that while the necessary draft legislation to support the new function of the Fisheries Department had already been prepared, it had yet to be approved in parliament. It was also mentioned that other concerned institutions, such as the institute for public health and concerned hospital laboratories were already involved.

The workshop concluded that the analysis presented seemed to be unique in the region and countries were invited to follow closely the further progress in Suriname as the subject constituted a very valid proposition for TCDC.

3.2.4.6 Experiences with the Privatization of Guyana Fisheries Limited

The session was chaired by Mr. W.G. Bethel of the Bahamas.

In her presentation, Ms. C. Corbin, Project Administrator, GTA Consultants Limited, Guyana, described experiences with the privatization of Guyana Fisheries Limited. She said that the company was established in 1979 as a means of consolidating government holdings in the fisheries sector. The company was authorized to catch, handle and process fish and other sea products.

Throughout the eighties, the company performed poorly, unable to service its debts, and accumulating large losses. A major reason for the company's poor performance was the illegal sale of shrimp at sea which reduced throughput for the company's shore facilities. In 1989, the government adopted a policy for the privatization of major state-owned enterprises, and in 1990 the assets of Guyana Fisheries Limited were offered for sale/lease. The company was acquired by Marine Food Products Limited, a corporation incorporated in Guyana.

After privatization, the company scaled back operations. It experienced difficulties as a result of the high operating/maintenance costs of vessels, devaluation of the Guyana dollar in 1991, and the cessation of landing fish by-catch at the McDoom plant. A five-year lease of shore-based assets, with an option to renew for a further five years, initially given to the company was not renewed in 1995, though the company continues to carry out operations in the absence of a lease.

As a consequence of the currency devaluation, the company sought reduced lease payments, although this has not been agreed by the government. The government has taken action to advertise the lease and the company has instituted legal proceedings against the government for the non-renewal of the lease.

In discussion, it was noted that the privatization of Guyana Fisheries Ltd. has been complicated by a number of factors, including a lack of clarity in present government policy on privatization, the speed with which the transaction proceeded, and the presence of Japanese grant aid (vessels and shore-based facilities). Since the assets provided by Japan had been delivered under a government-to-government arrangement, the Government of Guyana deemed it inappropriate to sell these assets as part of the privatization process and consequently they were leased to the successful bidder. The existence of these aid-supplied assets has therefore complicated the privatization process, preventing an outright sale of the processing plant.

As part of its fisheries management policy, the Government of Guyana has adopted limited entry measures in all major commercial fisheries. It has been assessed that shrimp, and possibly fish production, is already at MSY, and no additional fishing capacity is permitted to enter these fisheries. Consequently, in order to secure throughput for the shore-based facilities leased by the privatized company, purchases of fish from small-scale fishermen and from other industrial vessels operating within the EEZ will be necessary. Whereas the government previously required by-catch to be landed for processing at these facilities, following privatization, this requirement was not enforced and the shore-based operations of the privatized company suffered as a result.

The difficulties associated with the privatization of Guyana Fisheries Ltd. were recognized by participants. It was pointed out that if the lease is not extended to the privatized company, it is possible that the plant will cease operation in Guyana. There has been little interest shown by foreign investors in North America in taking up the lease.

3.2.5 Utilization and Marketing of Aquatic Products

3.2.5.1 Value-added Processing and Innovative Marketing of Fish and Fishery Products

The session was chaired by Mr. R. Charles of Guyana.

The paper presented by Dr. E. Ruckes, Senior Fishery Industry Officer (Marketing), FAO, Rome, highlighted various aspects of producing and exporting value-added products. Such products may carry increased value (materially and/or by services added) due to transport, packaging, processing by removing non-edible parts of the raw material or by adding other ingredients to form new products, e.g. a ready to cook dish. New presentations in a niche market can make a considerable difference to the value of any product on offer.

The importance of valid market intelligence for doing business and doing it well was stressed and FAO's work in the region was referred to, mentioning INFOPESCA. Nevertheless, most of the homework has to be done by the company concerned and in many cases personal contacts between seller and buyer will be helpful, if not essential, particularly if relatively small volumes are to be shipped and perhaps not at regular intervals as may be the typical situation of a small island developing state.

The structural changes in the fish production, processing and marketing sub-sectors in the major markets, i.e. North America, Europe and Japan, were mentioned and the importance which quality assurance had gained recently was stressed. Quality assurance systems, such as HACCP, had in some countries made it necessary to modify processes and to restructure processing plants requiring substantial investment. There had been reports of marketing difficulties and barriers to trade.

A recent report for the CITES Annual Committee on Queen Conch (*Strombus gigas*) was quoted. It supported the listing of the species in Appendix II but currently there was no evidence that would necessitate it to be moved to Appendix I.

The workshop considered that value-added processing was generally desirable but that its potential should be evaluated on a case by case basis and particularly the long standing trading arrangements should not be overlooked in this analysis.

Dr. Ruckes's paper is included in Appendix F.

3.2.5.2 The By-catch and Discards Issue: Utilization of By-products and Waste for Human Consumption

Mr. Charles, Guyana, continued to chair this session.

Dr. Ruckes of FAO introduced a paper which described the magnitude of the by-catch and discard problem on global and regional levels, both in physical and economic losses. Reference was made to FAO Fisheries Technical Paper No. 339, "A global assessment of fisheries by-catch and discards" which was known to only one of the participants. The presentation also informed about the proposed action by FAO, namely the study under preparation for consideration by the Committee on Fisheries in March 1997 and the Technical Consultation on Reduction of Wastage in Fisheries to be held in the second half of 1996 in Tokyo, Japan.

The recommendations of the Workshop on the Utilization of By-catch from Shrimp Trawlers held in Madagascar in June 1995 were presented for the consideration of participants with a view to identifying elements which would be relevant for SIDS in general and to the Caribbean region in particular. The meeting was informed about a contractual arrangement between the FAO and the Fisheries Department of Suriname aiming at quantifying the amount of by-catch and discards in the waters off Suriname and at promoting increased landings of by-catch and appropriate processing/ marketing of the by-catch.

Noting the severe problem of by-catch and discards in the region, several examples of by-catch and waste utilization were mentioned and the expectation was articulated that the by-catch utilization programme referred to in the last recommendation of the Madagascar workshop should be realized. In this connection, care should be taken in the definition of the role of governments which could be quite costly because effective utilization can be a rather difficult task.

3.2.5.3 Marketing and Credit Arrangements for Aquaculture Products in Jamaica

The session was chaired by Ms. C. Jeffrey of Antigua and Barbuda.

Ms. S. Wint, Executive Director, National Commission on Science and Technology, Jamaica, presented a paper. In her introduction, Ms. Wint explained that Jamaica had a long history of consumption of fish and of importation of fish since the local fishery industry was unable to satisfy the local demand for fishes. This was one of the reasons why aquaculture was introduced in 1976 and was still being expanded.

The need to adopt appropriate marketing strategies was highlighted which also aims at export markets in order to earn the foreign exchange required to finance imported production inputs.

The presentation then focused on the culture of tilapia in Jamaica which is still expanding. Ms. Wint stressed that the competition in the international tilapia market was increasing and this made it necessary to make tilapia culture more cost-efficient.

As one of the methods to deal with new challenges and to exploit export markets more efficiently, a contract farming scheme had been introduced in Jamaica by a commercial tilapia producer. The roles of fish farming associations and the fisheries administration in production and marketing of tilapia was also explained.

The development of a small-scale processing industry for tilapia and the use of by products was described next.

The presentation continued by giving an overview of the aquarium fish trade in Jamaica and of future directions of aquaculture development in Jamaica.

With regard to credit arrangements for aquaculture, it was highlighted that informal credit arrangements in the past have put fish farmers at a disadvantage because of inappropriate amounts and repayment periods. Institutional credit arrangements were judged to be more appropriate with regard to the operational features of the aquaculture industry.

The presentation concluded by highlighting that aquaculture is still expanding and that many changes have occurred as various new entrants had entered the aquaculture sector. As a result, demands for credit on the financial sector have increased and become more diversified.

In the discussion following the presentation, the question was asked whether any problems had been encountered when culturing tilapia together with shrimp. In response to the question, it was explained that problems had been encountered with regard to harvesting and sorting of shrimps because of the high density of stocking. Other problems included the unpredictability of yields and of the cost of feed. As a result of these problems, tilapia culture was cultured as major species, while shrimp was grown as by-product.

In response to questions regarding the minimum size of ponds for tilapia culture which were economically viable, it was explained that in commercial operations in Jamaica the minimum economically viable pond area for tilapia culture was three acres.

Other interventions referred to the role which has been and which is being played by the fisheries development unit in Jamaica. It was explained that in the past the unit had played an important role as catalytic agent for the development of the industry. For the future, the unit was still expected to play an important role in research and development.

Ms. Wint's paper is included in Appendix F.

3.2.5.4 Transfer of On-shore Cold Storage and Fish Processing Facilities from the Public Sector to Private Sector - the Case of Guyana

Ms. Jeffrey of Antigua and Barbuda continued to chair the session.

Mr. R. Charles, Chief Fisheries Officer, Fisheries Department, Ministry of Agriculture, Guyana, described the programme to establish shore-based facilities for use by his country's 13 fisheries co-operatives. These co-operatives are important in Guyana because about 80 percent of shrimp and fin fish production from the country's EEZ is landed by small-scale fishermen. In the seventies, the Government of Guyana elaborated a fisheries development plan that recognized the need for infrastructure and associated capital to strengthen small-scale fisheries production. Through providing and upgrading facilities available to small-scale fishers, it was expected that the efficiency of the operations would improve, fish supplies would rise, employment would expand and the co-operatives themselves would move into marketing.

With development assistance provided by Canada and the EEC, the Government of Guyana had constructed eight shore-based facilities, some of which had been subsequently leased to co-operatives. Leases were normally granted for a period of ten years. Recognizing that a number of these shore-based facilities were experiencing difficulties, the government had undertaken an assessment of their operations to determine the cause of the problems. Generally, it was found that the management of the facilities required strengthening, that some fishery cooperatives should be merged, and that private sector representatives should be included on the Boards of the co-operatives. This latter consideration caused some concern among co-operative members as it was feared that the participation of these representatives could lead to a take-over of the co-operatives by the private sector. Nevertheless, the government sought, through advertising, to solicit private sector interest in participating in the shore-based facilities in a joint-venture type arrangement with the co-operatives.

There was considerable interest by the private sector in participating in the ownership/ management of the shore-based facilities, but in most instances the interest was in taking the facilities over completely without the participation of the co-operatives. The government has decided that there would be private sector involvement by full lease or in joint venture with a cooperative society in three of the complexes, but no final decision has been taken on how the others will be owned and operated in the future.

It was noted that the fisheries co-operatives in Guyana are among the most vibrant co-operatives in the country. However, it has been found that most of these fisheries co-operatives lack management skills despite the emphasis placed on training by the government in the past. The Canadian Government has indicated that it will provide on-going assistance to Guyana to try to ensure that the shore-based facilities operate effectively.

During the discussion, it was pointed out that because the funds for the establishment of the shore-based facilities had been secured as grant aid, commercial considerations relating to investment returns had not been taken into account in the planning process. Had these funds come from commercial sources, such financial planning would have been required. Under these circumstances, the performance of the facilities might have been enhanced.

To date, none of the co-operatives has moved into fish marketing, as was anticipated.

3.2.6 Workshop Recommendations and Follow Up

For the purpose of preparing workshop recommendations and formulating follow-up proposals it was decided to form four working groups. The plenary selected a special topic for each of the four working groups. The composition of the working groups is shown in Appendix D.

The topics to be addressed by the working groups and their terms of reference are shown below:

WORKING GROUP I

The Role of Financial Institutions

Terms of Reference:

A. What is the role of financial institutions in strengthening national fisheries industries and in privatization of fisheries investment?

B. What are the practical steps to fulfil this role, including measures that institutions should take themselves and external assistance requirements?

C. Suggestions for follow up to the workshop.

WORKING GROUP II

Privatization of Fisheries Investment in SIDS and the Enhanced Role of the Private Sector in Fisheries

Terms of Reference:

A What is the appropriate role for the public sector in fisheries development and what steps should be taken to make it more effective?

B. What measures should be taken to strengthen the role of the private sector?

C. Suggestions for follow up to the workshop.

WORKING GROUP III

The Interface Between Fisheries Conservation and Management, Food Security and Credit and Investment

Terms of Reference:

A. What are the major constraints and possible solutions to fisheries management and conservation in SIDS in the Caribbean?

B. What practical measures are required to promote and co-ordinate fisheries conservation and management in SIDS in the Caribbean?

C. Suggestions for follow up to the workshop.

WORKING GROUP IV

Marketing of Aquatic Products

Terms of Reference:

A. What are the major constraints and possible solutions to improving the performance of the post- harvest sector in SIDS in the Caribbean?

B. Which practical measures should be taken to improve the performance of the post-harvest sector?

C. Suggestions for follow up to the workshop.

In accordance with their terms of reference, the working groups prepared and submitted the following reports:

REPORT - WORKING GROUP I

Topic: *The Role of Financial Institutions*

A. Role of financial institutions:

The role of financial institutions is to work in harmony with government and concerned institutions to assist in the development, promotion and implementation of policies in the fisheries sector; and also to make recommendations and to assist in the successful implementation of privatization programmes.

B. Practical steps required to fulfil role:

1. Establishment of mechanisms to improve communication, consultation and co-ordination.

2. Development of appropriate credit programmes to assist clients. Areas for consideration include interest rates, repayment schedules, loan appraisal procedures and monitoring.

3. Provision of technical assistance to national financial institutions from various national agencies and donor agencies to financial institution.

4 . Assistance in market research/intelligence, quality control, transportation, etc.

5. Human resource development through training and expertise enhancement and exposure to successful fisheries credit operations for both clients and personnel of financial institutions.

6. Provision of support and advisory services in the form of record-keeping information to clients, etc.

C. Suggested follow-up activities:

1. Follow-up workshop with emphasis on matching credit operations of financial institutions with special concerns of the fisheries sector.

2. Continued consultation between financial institutions in the region.

3. Establishment of communication network of financial institutions and fisheries administrations and development agencies in the Caribbean.

REPORT - WORKING GROUP II

Topic: *Privatization of Fisheries Investment in SIDS and the Enhanced Role of the Private Sector in the Fisheries*

A. The role of the public sector should be:

1. To have a clearly defined policy on privatization

2. To provide the basic social infrastructure in support of investment

3. To facilitate private sector involvement in fisheries development

4. To regulate and monitor the development of the fisheries sector

5. To address the special needs of small scale fishermen.

The steps that should be taken to make the public sector's role more effective are:

1. To establish an institutional framework for the execution of privatization

2. To ensure that a proper legal framework is in place for the implementation of policy

3. To ensure that state agencies are equipped with technical and physical resources;

4. Policies must be well articulated and transparent.

B. The measures to be taken to strengthen the role of the private sector should include:

1. Granting of fiscal incentives, as appropriate.

2. Financial institutions should be encouraged to develop financing schemes tailored to the needs of the industry.

3. Provision of technical assistance and transfer of technology.

4. Provision of market intelligence services.

C. The follow-up that is appropriate would be:

1. Continued interregional exchange of information and expertise.

2. Encouragement of participation of chambers of commerce in the development of the industry.

3. Continued collaboration with regional and international agencies in the development of the industry.

4. Continued assessment of the resources.

5. Development of bilateral agreements, as appropriate.

REPORT - WORKING GROUP III:

Topic: *The Interface between Fisheries Conservation and Management, Food Security and Credit and Investment.*

A. Major constraints and possible solutions to fisheries conservation and managment in SIDS:

In recent years, the major constraint and possible solutions pertinent to this section have been articulated at several international conferences and incorporated into their resulting proceedings, declaration and agreements. The Code of Conduct and the Kyoto Declaration are highlighted for particular attention here, but others are equally relevant. Special mention must be made of the 1994 United Nations Conference on the Sustainable Development of Small Island Developing States, its recommendation and action plan.

Given the comprehensive treatment of constraints and possible solutions to fisheries conservation and management globally, and with special reference to SIDS, the working group limited its task to highlighting in summary fashion, the issues most pertinent to this region that had been identified during the course of the workshop in progress. Not in any order of priority, these constraints are:

1. Size of the Exclusive Economic Zone (EEZ) - makes monitoring, control and surveillance difficult with possible erosion of the benefits of extended jurisdiction because of unauthorised fishing and other activities.

2. Information for fishing management - is scarce or difficult to obtain in relation to biological, social, economic and environmental components.

3. Shared resources - including the large pelagics said to hold the greatest potential for development, complicate management and necessitate regional and international measures.

4. Fisheries policy - either lacking or short-term, frustrates the goal of achieving the long-term sustainability of fishing resources, and persists due to the highly uncertain planning environment characteristic of SIDS.

5. Financial resources - which are becoming less available from local, regional and international sources, limit management capability in the face of increasing obligations.

6. Human resources - tend to be scarce or otherwise inadequate for the formulation and implementation of measures with sophisticated technical and scientific requirement and dimensions.

7. Physical resources - tend to be scarce and inadequate for management, particularly on the basis of individual states.

8. Legal/jurisdictional regime - being poorly developed at both national and regional levels, tends to constrain management options.

9. Coastal area management - has not yet, in many cases, fully integrated fisheries into its framework and procedures, resulting in conflict.

10. Fishing industry organizations - have been poorly established or unsustainable in many states, making informed and active participation in management problematic.

11. Balancing development and conservation - in the context of the precautionary approach, tends to be a difficult and highly politicised issue which affects management, credit and investment at several levels.

12. Risk and uncertainty - are pervasive features of management and finance which frustrate and complicate planning and strategic plan implementation.

13. Technology - which may be limited or inappropriate, restricts optimal financing arrangements and utilization of fishery resources.

14. Fish marketing and trade - are incorporating features (e.g. HACCP, and liberalization) that may work to the disadvantage of SIDS, particularly if management and financial regimes cannot respond.

15. By-catch and discards - are ecological and economic problems which, given other constraints, SIDS find difficult to address.

16. Fisheries research - intended to make available the best scientific information, is severely constrained by several factors.

Since possible solutions are identified with some specificity in the Code of Conduct and Kyoto Declaration, the working group restricted its discussion to a few generic initiatives which may address all of the above. These include:

1. Pooling resources - through appropriate national, regional and international organizations and arrangements for collaboration, co-operation and co-ordination.

2. Focused negotiations - concerning fishery access agreements, marine boundary delimitation, management arrangements and access to preferential funding identified in recent international instruments.

B. Measures required to promote and co-ordinate fisheries conservation and management, supporting and investment and credit programmes:

Since both the Code of Conduct and Kyoto Declaration contain general principles and specific measures that are applicable, the working group focused on a few relevant interventions made during the workshop which participants considered most important. These relate, in a general way, to the solutions identified earlier. The measures are:

1. Engage in comprehensive, indicative macroeconomic planning involving both the public and private sectors, and linking fishing finance and management, through mechanisms of social partnerships.

   macroeconomic planning in the region tends to focus on state policy and the government's public sector investment programme (PSIP), which often does not clearly articulate inter- and intra-sectoral linkages. Ideally planning should be done through social partnership (involving government, private sector and unions) and contain indicative financial information useful for both public and private sector investment.

2. Base financial services (credit and investment) on detailed fishery management plans.

   Following upon the macroeconomic plan, the financial policy and strategic planning must be firmly based on fishery management reference points and performance criteria formulated on the basis of the best scientific evidence.

3. Establish close collaboration between management and finance agencies based on comprehensive participation by all stakeholders.

   Having linkages in plans is a necessary, but not sufficient, condition for achieving long-term sustainability. Public and private sector agencies involved in management and finance must establish close operational relationships informed by the stakeholders that comprise their constituencies.

4. Fishery agencies must reduce financial risk and uncertainty through information exchange and legislative provisions.

If financial institutions are to play an integral role in management and conservation, their exposure to risk and uncertainty must be both quantified and reduced in order for their involvement to be sustained. Fishery agencies have an obligation to assist in this respect.

5. Promote fishing industry organization in order to improve the efficiency and effectiveness of financial services and management.

   Public and private sector stakeholders in the fishing industry must share both power and responsibility for optimal sustainable results. This is made difficult, if not impossible, when private sector persons and enterprises involved in fisheries are not organizedd in a manner to facilitate collective representation and action.

C. Follow-up action:

The working group considered a limited number of specific follow-up actions which could be employed to implement the measures identified. Since it is envisaged that comprehensive participation would be a pre-requisite, the actions are not identified. The emphasis, however, is upon action amenable to implementation at the national level with or without external assistance.

1. (a) define public and private sector roles and expectations in the economy
   (b) make plan goals, objectives and strategies clear and measurable
   (c) allocate collaborative and complementary functions to key executive agencies
   (d) promote and establish social partnerships

2. (a) include finance and credit as a section in fishery-specific management plans
   (b) establish specific evaluative roles for fishery agencies in credit procedures

3. (a) establish a bottom-up approach to planning and forecasting
   (b) identify stakeholders and their roles in management and finance
   (c) sensitise stakeholders to issues of mutual interest through workshops/seminars

4. (a) establish databases and networks for financial and management information sharing
   (b) conduct regular joint analyses of fishery and financial trends
   (c) quantify uncertainty and assess risks when providing fishery information
   (d) make provision in fisheries registration, licensing and administration to enhance security

(e) Introduce financial innovations such as savings and reserve loan components

5. (a) provide strategic, tangible incentives for organisations (discounts, concessions)
   (b) intensify training and extension to enhance organization capabilities
   (c) establish and formalise mechanisms (such as Fisheries Advisory Committees) to facilitate meaningful participation.

In the above recommendations for follow-up actions, specific technical and scientific initiatives are omitted. This is because, not only do they exist in the Code of Conduct and Kyoto Declaration, but the working group felt that the actions listed here are essential for the prior establishment of conditions conducive to implementing more specific initiatives.

REPORT - WORKING GROUP IV

Topic: *Marketing of Aquatic Products*

A. Major constraints and possible solutions to improving the performance of the post-harvest sector in SIDS:

Major Constraints

1. Poor logistics and infrastructure
2. Exclusion of competent technical staff from the decision-making process
3. Inadequate maintenance
4. High proportion of by-catch discard
5. Poor post-harvest treatment (handling, storage and processing)
6. Poor vending practices
7. Lack of marketing intelligence (local and export markets)
8. Faulty marketing assumptions
9. Inconsistent supply and demand
10. High cost of imported packaging (not available locally or regionally)
11. Inconsistent and inadequate airline transportation
12. Prolonged retention of imported goods at Customs'offices in the region for clearance
13. Development of internationally acceptable quality standards
14. Inadequate disposal of waste leading to environmental pollution

15. Sensitive prices

16. Confidence/trust between buyer and seller.

Solutions

1. Involvement of competent technical staff in the decision-making process. Training fishermen, fish processors and vendors in proper procedures for harvesting, post-harvest treatment and vending of fish

2. Regional networking of fisheries departments for exchange of information

3. Preventative maintenance

4. Innovative marketing

5. Transport scheduling

6. Educate fishermen about the economic cost attached to by-catch and need for better utilization. Improvement in business management practices.

B. Practical measures/priorities to improve performance of the post-harvest sector in SIDS:

1. Involvement of competent technical staff in the final stages of the decisions-making process

2. Flexibility in design of infrastructure

3. Monitoring and enforcement of regulations. Increasing of appropriate fines.

4. On site training of fishermen, fish processors and vendors on proper post-harvest treatment and vending practices

5. Assign a marketing officer to each fisheries department to provide marketing information

6. Dialogue with regional airlines to appraise them of the special needs of the fisheries industry

7. Develop packaging manufacturing capabilities within the region

8. Educate customs officers about particular needs of the fisheries sector and the need for the timely release of imported goods

9. Integration of spin-off opportunities to manufacture by-product, e.g. fish meal and silage using by-catch and waste.

C. Appropriate follow-up:

1. Locate and make available to fishermen, fish processors and vendors information on proper fish handling and processing techniques.
2. Link up with existing fisheries and aquaculture networks to access regional information on marketing.
3. Based on the findings of the study currently being undertaken by the Fisheries Department of Suriname/FAO on promoting increased landings of by-catch and appropriate utilization of the by-catch, similar measures could be applied to the other islands.
4. Review past OECS marketing developments on post-harvest aspects. Elaborate on practical proposals for future development to improve performance in the post-harvest sector.
5. Assess the overall availability of functioning back-up equipment for maintenance purposes in the fisheries sector.
6. Workshop to evaluate training needs of different islands. Country reports outlining the major problems of infrastructure and operations, and possible solutions.

3.2.7 Discussion and Adoption of Workshop Report

During the closing session, a draft report of the workshop was reviewed, finalized and unanimously adopted as presented in this report

On behalf of the organisers of the workshop, Mr. B. Chakalall and Dr. U. Tietze of FAO expressed their appreciation of the active participation of all participants and observers and of their valuable contributions to the achievement of the objectives of the workshop. They also expressed their gratitude to the Government of Trinidad and Tobago for the excellent organizational arrangements which ensured a conducive and pleasant working atmosphere.

The workshop concluded by participants and organisers expressing a strong interest and commitment to cooperate in the implementation of the recommendations of the workshop and the suggested follow-up activities.

APPENDIX A

PROGRAMME

Monday, 24 June

08.30 - 09.30	Registration of participants and observers
09.30 - 10.15	Opening session
10.15 - 10.45	Tea break
10.45 - 11.00	Photo session
	Chair: Mr. M. La Croix
11.00 - 11.30	Introduction to workshop and organizational arrangements - Mr. B. Chakalall, FAO Regional Fisheries Officer
11.30 - 12.30	FAO's Programme of Fisheries Assistance to SIDS - Dr. D. J. Senior Fisheriy Planning Officer, FAO
12.30 - 14.00	Lunch break
	PROMOTION OF SUSTAINABLE CAPTURE FISHERIES AND AQUACULTURE PRACTICES
	Chair: Mr. B. Fabres
14.00 - 15.15	The Status of Aquatic Resources and Fisheries Management in the the Caribbean - Mr. B. Chakalall, FAO Regional Fisheries Officer
15.15 - 15.30	Tea break
15.30 - 16.30	The Code of Conduct for Responsible Fisheries: Implications for Caribbean States - Dr. E. Ruckes, Senior Fishery Industry Officer, FAO

Tuesday, 25 June

	Chair: Mrs. J. Rawlins
09.00 - 10.15	The Role of Financial Institutions in Asia and Pacific in Strengthening the Fisheries Sector and Privatisation of Fisheries Finance - Mr. B.P. Shrestha, Managing Director, Consultancy Services Unit, APRACA
10.15 - 10.30	Tea break
10.30 - 11.30	Credit and Financial Requirements of Community-based Fisheries Management Programmes - Dr. U. Tietze, Fishery Industry Officer, FAO
11.30 - 13.00	Lunch break
	PRIVATIZATION OF FISHERIES ENTERPRISES, FISHERIES INFRASTRUCTURE AND OF FINANCIAL INSTITUTIONS
13.00 - 15.15	Field trip to National Fisheries Limited
15.15 - 15.30	Tea break
	Chair: Mr. H. Willett
15.30 - 16.45	Privatization of the National Fisheries Company of Trinidad and Tobago - A Case Study - Mr. L. Mayers, Director, Agro-based, Manufacturing and Services Sector (Investment), Ministry of Finance, Trinidad and Tobago
19.00 - 21.00	Reception hosted by the Government of the Republic of Trinidad & Tobago

Wednesday, 26 June

08.30 - 09.30	The Role of Financial Institutions in the Development of the Aquaculture Industry in the Caribbean - Ms. S. Wint, Executive Director, National Commission on Science and Technology, Jamaica
09.30 - 10.30	Adaptation of National Credit Programmes to Fisheries Management Requirements - a Case Study from Sri Lanka - Dr. U. Tietze, Fishery Industry Officer, FAO
10.30 - 10.45	Tea break

Chair: Mr. P. Mc Conney

10.45 - 11.45 Transfer of Small-scale Fisheries Infrastructure from Public to Private Sector - the Case of Suriname
- Ms. N. Habieb, Fisheries Assistant, Ministry of Agriculture, Animal Husbandry and Fisheries, Suriname

11.45 - 12.45 The Financial Requirements for the Implementation of HACCP in the Surinamese Fish Processing Industry, Suriname
- Mr. A. Zojindra, Fisheries Assistant, Ministry of Agriculture, Animal Husbandry and Fisheries, Suriname

12.45 - 14.00 Lunch break

Chair: Mr. G. Bethel

14.00 - 15.15 Experiences with the Privatisation of Guyana Fisheries Limited - a Case Study
- Ms. C. Corbin, Project Administrator, GTA Consultants Limited, Guyana

15.15 - 15.30 Tea break

15.30 - 17.30 Experiences with Joint Ventures in the Fisheries Sector - An Overview
- Dr. D. J. Senior Fishery Planning Officer, FAO

Thursday, 27 June

UTILIZATION AND MARKETING OF AQUATIC PRODUCTS

Chair: Mr. R. Charles

09.00 - 09.45 Value-added Processing and Innovative Marketing of Fish and Fish Products
- Dr. E. Ruckes, Senior Fishery Industry Officer, FAO

09.45 - 10.30 The By-catch and Discards Issue: Utilisation of Fish By-products and Waste for Human Consumption
- Dr. E. Ruckes, Senior Fishery Industry Officer, FAO

10.30 - 10.45 Tea break

	Chair: Ms. C. Jeffrey
10.45 - 11.30	Marketing and Credit Arrangements for Aquaculture Products in Jamaica - Ms. S. Wint, Executive Director, National Commission on Science and Technology, Jamaica
11.30 - 12.15	Transfer of On-shore Cold Storage and Fish Processing Facilities from the Public Sector to Private Sector - the Case of Guyana - Mr. R. Charles, Chief Fisheries Officer, Fisheries Department, Ministry of Agriculture, Guyana
12.15 - 12.30	CABOVERDE Fisheries Institutions - Joaquim Xavier Pires Ramos Pinto, Executive Director, Fundo de Desenvolvimento Das Pescas
12.30 - 14.00	Lunch break
	WORKSHOP RECOMMENDATIONS AND FOLLOW UP
15.30 - 17.30	Plenary session - Working group reports - Working groups on action plan and recommendations
Friday, 28 June	
09.00 - 12.30	Free
12.30 - 14.00	Lunch break
14.00 - 16.00	Discussion and adoption of workshop report

APPENDIX B

LIST OF PARTICIPANTS

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Mrs. Willa Draper
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APPENDIX C

LIST OF PUBLICATIONS, PAPERS AND LECTURE NOTES CIRCULATED DURING THE WORKSHOP

1. Draft Agenda
2. Opening ceremony address by Mr. W. Gibson, Ministry of Agriculture, Land and Marine Resources, Trinidad and Tobago
3. Opening ceremony address by Dr. U. Tietze, FAO, Rome, Italy
4. The Code of Conduct for Responsible Fisheries: implications for Caribbean States - Dr. E. Ruckes, FAO, Rome
5. FAO's programme of fisheries assistance to Small Island Developing States - Dr. D.J. Doulman, FAO, Rome
6. Joint ventures in industrial fisheries development - Dr. D.J. Doulman, FAO, Rome
7. Credit and financial requirements of community-based fisheries management programmes - Dr. U. Tietze, FAO, Rome
8. Adaptation of national credit programmes to fishery management requirements - a case study from Sri Lanka - Dr. U. Tietze, FAO, Rome
9. Revolving loan funds and credit programmes for fishing communities - management guidelines - J.F. Dorsey, Jr., P.A. Ryhanen and U. Tietze, FAO, Rome
10. Financial requirements for the implementation of HAACP in the Surinamese fish processing industry - Mr. A. Zojindra, Ministry of Agriculture, Animal Husbandry and Fisheries, Suriname
11. Transfer of small-scale fisheries infrastructure from the public sector to the private sector - the case of Suriname - Ms. N. Habieb, Ministry of Agriculture, Animal Husbandry and Fisheries, Suriname
12. A case study - experiences with the privatisation of Guyana Fisheries Ltd. - Ms. C. Corbin, GTZ Consultants Ltd., Ministry of Agriculture, Guyana
13. Transfer of on-shore cold storage and fish processing facilities from the public sector to the private sector - the case of Guyana - Mr. R. Charles, Ministry of Agriculture, Guyana

14. National Fisheries Company Limited. - a case study (1972 - 1995) - Mr. L. Mayers, Ministry of Finance, Trinidad and Tobago

15. The role of financial institutions in the development of the aquaculture industry in the Caribbean - Ms. S. Wint, National Commission on Science and Technology, Jamaica

16. Marketing and credit arrangements for aquaculture products in Jamaica - Ms. S. Wint, National Commission on Science and Technology, Jamaica

17. The role of financial institutions in Asia and the Pacific in strengthening the fishery sector and privatization of fishery finance - Mr. B.P. Shresta, APRACA Consultancy Services (ACS), Indonesia

18. By-catch and discards issue: utilization of fish by-products and waste for human consumption - Dr. E. Ruckes, FAO, Rome

19. Value-added processing and innovative marketing of fish and fishery products - Dr. E. Ruckes, FAO, Rome

20. State of fishery resources in the Western Central Atlantic Region

21. Some information about Cape Verde fisheries institutions

22. List of Participants

APPENDIX D

COMPOSITION OF WORKING GROUPS

WORKING GROUP I:

Chairperson:
Mr. H. Willett, Antigua and Barbuda

Facilitator:
Mr. B.P. Shrestha, APRACA, Indonesia

Members:
Mr. W.G. Bethel, Bahamas
Ms. C. Jeffrey, Antigua and Barbuda
Mr. R. Charles, Guyana
Mr. K. Pierre, Saint Vincent and the Grenadines
Mr. J.H. Manswell, Trinidad and Tobago
Mrs. J. Rawlins, Trinidad and Tobago
Mr. J.X.P.R. Pinto, Cape Verde

WORKING GROUP II:

Chairperson:
Mr. L. Mayers, Trinidad and Tobago

Facilitators:
Messrs. D. J. and B. Chakalall, FAO

Members:
Ms. C. Corbin, Guyana
Mr. R. George, Saint Lucia
Ms. N. Habieb, Suriname
Mr. A. Lynch, OECS
Mr. J. Fukui, JICA
Mr. C.A. Rogers, NOFAC

WORKING GROUP III:

Chairperson:
Dr. P. McConney, Barbados

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Ms. L. Henry, Trinidad and Tobago
Ms. R.-A. de Freitas, Trinidad and Tobago
Mr. B. Fabres, CFRAMP
Mr. D. St. Aimee, ECLAC
Mr. K. Takahashi, JICA
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WORKING GROUP IV:

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APPENDIX E

OPENING ADDRESS OF MR. WINSTON GIBSON, AG. PERMANENT SECRETARY, MINISTRY OF AGRICULTURE, LAND AND MARINE RESOURCES, TRINIDAD AND TOBAGO

Mr. Chairman, Mr. Mervyn La Croix, Director of Fisheries, Ministry of Agriculture, Land and Marine Resources, Mr. Bisessar Chakalall, FAO Representative *ad interim* in Trinidad and Tobago, Mr. Uwe Tietze, Fishery Industry Officer, Fishery Industries Division of the Food and Agriculture Organization (FAO), Rome, your excellencies, special guests, participants, Ladies and Gentlemen,

It is for me a pleasure to welcome you here this morning to address you on the occasion of the opening ceremony of the Workshop on the Role of Financial Institutions in Strengthening National Fisheries Industries and Privatization of Fisheries Investment in Small Island Developing States (SIDS).

I want, however, to extend a special welcome to participants, consultants and presenters, especially those who are visiting our shores for the first time.

To the representatives of the financial institutions I want also to convey special greetings for, according to our records, it is the first time that decision makers of the financial institutions and fisheries management and development have come together at such a forum in Trinidad and Tobago, or indeed, the region as a whole.

When the importance of the role of financial institutions in the development of the fishing industries is considered, especially at a time when the global community is demanding that environmental accounting must be on the agenda of all investors, this workshop is seen as most appropriate and being convened at a most propitious time for Trinidad and Tobago.

Trinidad and Tobago, as well as all other States, must also respond to other international development such as the "Code of Conduct for Responsible Fisheries", the recommendations of the United National Conference on the Environment and Development, 1992, and the follow up to this which resulted in the Conference on the Development of Small Island Development States, held in Barbados in 1993.

In charting a Programme of Action for Small Island Developing States the preamble states and I quote: "although they are afflicted by economic difficulties and confronted by development imperatives similar to those of developing countries generally, Small Island Developing States also have their own peculiar vulnerabilities and characteristics, so that the difficulties they face in the pursuit of sustainable development are particularly severe and complex."

Some of the disadvantages which derive from small size, and it must be remembered that many island states are themselves made up of small islands, include, but are not restricted to, a narrow range of resources, forcing undue specialisation, excessive dependence on international trade and hence, vulnerability to global developments, limited institutional capacities and domestic markets which are too small to provide significant economics of scale and high levels of diversity but relatively small members of the various species, imposing a greater risk of extinction and the creating a need for protection.

Several plans of action, policies and measures are recommended at the national, regional and international levels and for the coastal and marine resources. I would merely mention two of these recommendations at the national level, they are:

i) establish and/or strengthen where appropriate institutional, administrative and legislation arrangements for the development of integrated coastal zone management plans and strategies for coastal watersheds and exclusive economic zones and their implementation, including integration within national development plans; and

ii) develop and/or strengthen national capabilities for the sustainable harvesting and processing of fishery resources and provide training and awareness programmes for managers of coastal and marine resources.

Mr. Chairman, Ladies and Gentlemen, how has Trinidad and Tobago responded to these international development?

In the first place an Environmental Management Act was promulgated in 1995. When fully implemented this should deal comprehensively with most environmental matters.

Secondly, a new Forest Bill is being finalised while a National Parks and Wildlife Bill is in the early stages of development.

Thirdly, the Ministry of Agriculture, Land and Resources is at this moment finalising a Bill which will eventually be enacted as the "Marine Fisheries Management Act".

The objectives of management as enshrined in this draft Bill amply captures the policy directions of the Ministry and I quote:

> "The main purpose of this Bill is to enable the Minister to design management and development strategies for the fisheries of Trinidad and Tobago that reflect the following objectives:

i) the adoption of conservation and management measures that:

- achieve long-term sustainability and optimum utilisation of the fisheries resources
- are based on the best scientific evidence available
- are based on the precautionary approach where information is uncertain, unreliable or inadequate

- maintain ecological relationships between harvested, dependant and related populations and with the ecosystem as a whole;

ii) the maximisation of economic efficiency, while bearing mind the social impact on particular fisheries, including the artisan sector;

iii) accountability of the fishing industry and the community at large for fisheries management; and

iii) achievement of appropriate cost sharing arrangements among all the beneficiaries of sound fisheries management."

When the management of our living marine resources came up for review some years ago, having considered all the international imperatives and national requirements, it was decided to use the holistic and participatory or community involvement approaches. Certain key elements of these approaches were identified, the main ones being:

i) assessment of the living marine resources to determine what was available, in what quantities, the reasonability and therefore how much could be safely harvested. This, of course, is a continuing exercise;

ii) determination of the most appropriate harvesting regime, that is, the best combination of vessel and fishing gear and equipment;

iii) port development with the necessary facilities for repairs and spare parts to minimise downtime of the vessel, thus maximising days at sea;

iv) handling, processing and marketing to optimise use of the harvested resources, thus also eliminating post harvest losses;

v) training at all levels and extension;

vi) legislation;

vii) monitoring, surveillance and enforcement;

viii) consultation with all stake holders at all stages in the development of the management regime; and

ix) an incentive package.

The results of all these elements were to be combined in Management Plans for the major fisheries.

As a result of various initiatives, the Government of Trinidad and Tobago has been able to accomplish the following in the areas of resources assessment and management:

i) establish a Fisheries Management Information System (FISMIS) through the International Development Research Centre (IDRC), the bibliographic data bases of which are widely used regionally and even internationally;

ii) with the assistance of the FAO, conduct preliminary resource assessments on the main fisheries exploited by our fishermen. The results of these studies indicated that management regime is urgently required;

iii) participate in the CARICOM Fisheries Resources Assessment and Management Program (CFRAMP) whose main goal is to promote the management and conservation of fisheries resources of CARICM countries and to permit exploitation on the basis of sustainable yields. CFRAMP is funded mainly by the Canadian International Development Agency (CIDA);

iv) host the CFRAMP Resources Assessment Unit (RAU) for shrimp and groundfish;

v) with the assistance of the FAO, develop marine fisheries policy direction and a draft Marine Fisheries Management Bill;

vi) develop draft management plans for the major fisheries with assistance from both FAO and CFRAMP;

vii) carry out an Integrated Coastal Fisheries Management Project funded by the UNDP/FAO; and

viii) consultation with all our stake holders, including the financial institutions, at all stages in the development of our management regime.

Mr. Chairman, Ladies and Gentlemen, I have outlined some of the initiatives the Government of Trinidad andTobago has taken in developing a management regime for the conservation and management of its fisheries resources with due consideration for the environment and more importantly the people. All this can come to nought, however, if the lending policy of the financial institutions is not in harmony with the government's policies and measures. On the other hand financial institutions must be informed and updated on a regular basis on the state of the resources and policies and measures being pursued.

Here in Trinidad and Tobago the main leading agency for the harvesting and processing of fish is the Agricultural Development Bank (ADB), the object of which "shall be to encourage and foster the development of agriculture and commercial fishing and industries connected therewith and to mobilise funds for the purpose of the development."

During the period 1990 to 1995 the Agricultural Development Bank approved 767 loans for the marine fisheries valued at $20 million T&T for vessels, engine, vehicles, operating funds, etc. For the same period, 26 loans were approved for aquaculture valued at $2.17 million T&T.

The Agricultural Development Bank falls under the portfolio of the Ministry of Agriculture, Land and Marine Resources and both organisations work in close collaboration. However, decision making at the ADB will be greatly enhanced once the Management Plans for the major fisheries have been finalised and made available. The ADB will be invited to participate in the finalization process.

A special feature of the ADB's programme is the Youth Window Project whose purpose is "to encourage and assist young graduates and progressive subsistence farmers with clear potential but inadequate loan security, to establish profitable enterprises located predominantly in the rural sector".

Other financial institutions involved in lending to the fish industry are the commercial banks and for the small entrepreneur Fund Aid and the Small Business Development Company which serves as guarantor for a percentage of loans.

In spite of what the Government of Trinidad and Tobago is doing, because of the state of world fisheries today, the fishery resources of Trinidad and Tobago is constantly under threat because:

i) although there is evidence that the fisheries are being heavily exploited, in some cases to the point of over-exploitation, it is difficult to reduce fishing effort when dealing with artisanal fisheries. Mechanisms must first be put in place to absorb the likely unemployment that would result;

ii) the effect of a market driven situation exacerbated by trade liberalisation. There is an increasing demand for fish and fish products from developing States and the exchange rates are considered very favourable for export. In such scenarios investors could very well be influenced by the market forces rather than the state of the fisheries resources; and

iii) because of over-fishing in the developed countries, metropolitan companies are now directing their attention and excess vessel and equipment capacity to the resources of developing States.

It is obvious, Mr. Chairman, Ladies and Gentlemen, that financial institutions have a major role to play in the prudent management of the fisheries resources especially of Small Island Developing States. Perusal of the draft agenda indicates that over the next week participants will have an opportunity to listen to and discuss experiences world-wide on the role of various financial institutions in privatisation, aquaculture, marketing and credit arrangements. At the end of the week, I am sure you will be able to come up with meaningful recommendations for the fishing industries of Small Island Developing States are depending on you.

In spite of the arduous task ahead of you for the week, I hope you will be able to enjoy some of the hospitality of Trinidad and Tobago.

Mr. Chairman, Ladies and Gentlemen

I thank you.

APPENDIX F

SELECTED PAPERS PRESENTED AT WORKSHOP

FAO'S PROGRAMME OF FISHERIES ASSISTANCE TO SMALL ISLAND DEVELOPING STATES

by

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Abstract

This paper provides a description and review of the scope of the FAO Programme of Fisheries Assistance to Small Island Developing States (SIDS), which is currently being elaborated. The introduction to the paper gives a general description of the physical, food and economic considerations in SIDS that have led to the need for a dedicated FAO fisheries programme. The next section discusses the evolution of the Programme and the various FAO endorsements it has received, together with its objectives, implementation and funding considerations. The scope of the Programme, covering its six technical areas of assistance, is then outlined. The relationship between the Programme and the Code of Conduct for Responsible Fisheries is addressed in the following section. Implications of the Programme for the SIDS of the Caribbean Sea is reviewed briefly and conclusions drawn concerning the benefit of the Programme to SIDS generally.

INTRODUCTION

Although facing similar problems with respect to the conservation and management of fisheries resources and food security, small island developing States (SIDS) are not a homogeneous group. Indeed, States tend to have rather unique social, economic and natural environments, even though most SIDS are located geographically within the tropics, in a band between 20 degrees north and south of the Equator.

In their diversity SIDS range along a continuum from aggregations of scattered atolls (e.g. Marshall Islands and Maldives) to relatively large land masses (e.g. Cuba and Papua New Guinea).

Atoll States are small, low-lying, sandy and infertile, densely populated and poorly endowed with resources and opportunities for land-based development. In these SIDS *per caput* consumption of fish is high, large numbers of people are employed in small-scale fishing activities and principal national industries centre around the production, and sometimes processing, of fish. For practical and technical assistance purposes, these SIDS can be considered as a coastal zone.

In contrast to atoll States, larger and higher island States have more extensive land masses and usually lower population densities. These SIDS, with agriculture and inland water systems having a degree of similarity with those found in continental States, are capable of supporting tropical agriculture and a broader range of economic activities. In comparison to atoll States, populations on larger and better endowed SIDS have a more varied protein intake and a more diversified social and economic development path is possible.

Despite geographic and economic differences among SIDS, the fisheries sector plays a critical role in the lives and economy of all island communities. The sector provides:

- a basic and vital source of food,
- employment where commercial production is possible and population concentrations and markets exist, and
- national incomes for governments from the sale of fishing rights (access fees) and exports of fish and fisheries products (export taxes). Having limited opportunities for land-based development, island communities are extremely dependent on the sea and its living resources for their existence.

The nature of problems faced by SIDS with respect to the effective conservation and management of fisheries resources are not vitally different to those of other States. However, SIDS are considerably disadvantaged in that they do not have the same range of solutions to these problems that larger States have at their disposal. As essentially self-contained ecosystems, fisheries problems in SIDS usually manifest themselves more obviously, more quickly, and with greater effect than in larger, continental States.

Although there are apparent differences between regional groupings of SIDS, and indeed even within regional groupings, it is nonetheless possible to generalize about a number of common SIDS characteristics. These characteristics include, *inter-alia*:

- disproportionately large ratios between land and EEZ areas,
- very high levels of dependence on fish for food,
- large populations and high rates of population growth (in many cases between 2.5-3.5 percent *per annum*, though markedly lower in the Caribbean region) relative to the carrying capacity of islands,
- high and increasing rates of urbanization,
- physically fragile environments and climatic fluctuation,
- high dependence on foreign development assistance,
- high levels of urban unemployment and rural under-employment,

- small, open, dependent and undiversified economies that are extremely vulnerable and reliance, in some cases to a large extent, on preferential trading arrangements, and

- in some cases, substantial rates of outward population migration resulting in critical losses of skills to the economy.

There are currently 36 SIDS in the Alliance of Small Island Developing States (AOSIS), and an additional five dependent territories that have observer status within the organization. The current total population of the AOSIS membership is approximately 28.5 million. Thirty-one of the SIDS in this grouping are members of the United Nations, and 28 are members of the Food and Agriculture Organization of the United Nations (FAO). The AOSIS membership is truly international in nature. It covers SIDS from the Atlantic Ocean, the Caribbean Sea, the Indian Ocean, the Mediterranean Sea, the Pacific Ocean, and the South China Sea. Details relating to the role, purpose and membership of AOSIS are given in Annex 1.

All SIDS are economically disadvantaged, and according to the United Nations, 10 SIDS (out of a total of 47 States) have "least developed country" status. Within the UN system and in other international fora there is widespread recognition of the special problems, needs and circumstances of SIDS, and as a result, dedicated assistance programmes and funding arrangements have been established.[1]

FISH CONSUMPTION, FOOD SECURITY AND ECONOMIC CONSIDERATIONS

Fish consumption rates

Principally out of necessity, SIDS have the highest annual *per caput* rates of fish consumption in the world. According to FAO *per caput* consumption of fish in many SIDS has exceeded 50 kg per year, and in one case reached 133 kg, compared with an annual average *per caput* consumption rate of 9 kg in developing States and 27 kg in developed States. Indeed, in some SIDS fish accounts for as much as 95 percent of the population's total animal protein intake.[2]

Food security

The concept of, and need for, food security in SIDS is well understood by island communities. Living in fragile physical environments, having limited options for the production of food, and being susceptible to periodic devastation by natural disasters[3], island communities appreciate and understand fully the importance of securing food supplies as an on-going activity.

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[1] The special conditions and circumstances that set SIDS apart from other developing States are acknowledged explicitly in the (i) 1982 *United Nations Convention on the Law of the Sea*, (ii) 1984 *FAO Strategy for Fisheries Management and Development*, (iii) 1992 *FAO Technical Consultation on High Seas Fishing*, *(iv) 1992 Declaration of Rio on Environment and Development*, (v) *Agenda 21: The United Nations Programme of Action from Rio*, (vi) 1994 *Programme of Action for the Sustainable Development of Small Island Developing States*, and (vii) 1995 *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*.

[2] FAO. 1991. "Fish and fishery products: World apparent consumption statistics based on food balance sheets (1961-1989)". *FAO Fisheries Circular No. 821 Revision 1*. FAO. Rome. 422p.

In contrast to continental developing States where under-nutrition and food insecurity is generally more pronounced in rural areas, the situation in many SIDS is the reverse. Owing to the relative availability of subsistence and small-scale agricultural and fisheries production in rural areas in SIDS, food security tends to be less problematic in these areas than in urban centres.

Despite the need for increased fish supplies to feed increasing rural and urban populations, most SIDS are encountering declining availability of fish for food, due either to the overfishing of inshore resources or other natural phenomena such as 'coral reef bleaching'.[4]

This situation makes SIDS especially vulnerable to food insecurity. The overall effect of declining supplies of domestically produced fish is to increase the dependence of island communities on imports of low-quality protein substitutes, thereby leading to a rising food import dependency ratio.

In SIDS food security and the effective conservation and management of fisheries resources are linked critically. For food security reasons the rational utilisation of all fisheries resources, but in particular inshore fisheries resources, must be emphasized. National and international programmes of assistance directed to ensuring food security should be promoted first and foremost, so that existing levels of fishing effort do not result in unsustainable resource use, and that where stocks have been subject to excessive fishing in the past, measures are taken to rehabilitate these stocks.

Economic considerations

Most SIDS are economically vulnerable, having narrow economic bases and limited options to diversify their economies. Where possible SIDS export a restricted range of tropical agricultural products. In international markets SIDS compete for sales against each other and with other larger, more cost-efficient, and sometimes subsidized, producers from developed States. However, despite existing constraints, some SIDS have attempted to diversify their economies into light manufacturing.

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[3] According to UN sources, natural disasters appear to be occurring with increasing frequency in SIDS. Devastation from natural causes is interpreted broadly to include devastation resulting from cyclones, volcanic eruptions, earthquakes, storm surges, landslides, extended droughts and extensive flooding. Following such disasters it is common for upto 90 percent of food crops to have been destroyed in some SIDS, and some island communities in more isolated and remote areas may be totally dependent on fish for their survival until outside assistance arrives.

[4] The importance of the loss of corals and coral reefs in SIDS due to climate change and sea level rise (commonly known as 'bleaching'), and associated rising sea-water temperatures, must be underscored. The loss of corals and reefs leads to the loss of habitat for reef-associated species of fish. These resources are critical in the food supply equation in all SIDS. The loss or destruction of reefs will therefore have a direct negative impact on the availability of food in SIDS since reef-associated species of fish are the most common animal protein source available to islanders.

The development of national fishing industries[5] and the licensing of foreign fleets to fish in their exclusive economic zones (EEZs) is a major focus of economic activity for SIDS.

As part of their efforts to diversify, SIDS have fostered the development of tourism. This development, in most cases, is related to the marine and fisheries endowments of these States. For some SIDS tourism represents their largest source of national income and one of the largest avenues for employment.

Despite efforts to pursue policies that foster economic diversification and promote economic self-reliance, most SIDS remain heavily dependent on aid inflows.[6] This situation is not expected to change, primarily because SIDS do not generally have the national capacity nor the resources to achieve economic self-reliance.

The restricted opportunities that many SIDS face for industry development require that they pursue economic development strategies closely tied to the use of their fisheries resources. Revenue earned by some SIDS from the exploitation and processing of their fisheries resources annually accounts for more than 50 percent of public sector revenue. In these SIDS the fisheries sector represents the "national engine of growth", supporting broader social and economic programmes such as health, education, and national capacity-building.

EVOLUTION OF THE PROGRAMME

The Twenty-first Session of the Committee on Fisheries (COFI), Rome, March 1995, considered a paper prepared by the Fisheries Department entitled *Fisheries Needs of Small Island Developing States* (Document COFI/95/5).[7] The document elaborated a coherent and comprehensive programme of assistance that might be adopted for the fisheries sector in SIDS by FAO. The document initially covered 10 potential areas of assistance. However, in discussion it was agreed at COFI that in order to give the Programme a sharp and distinct fisheries focus, the number of areas to be covered by the Programme should be reduced to six.

In the report of the Twenty-first Session, COFI:

- strongly endorsed the establishment of an FAO programme of fisheries assistance for SIDS,

- requested the Organization to elaborate the programme for the international donor community, and

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[5] SIDS have developed commercial coastal fisheries for domestic needs (sometimes in support of tourism) and, in some cases, for export. The exploitation of reef associated fish species, together with deep-water snappers, for example, have been financially lucrative, but overfished easily. Similarly, in the absence of appropriate conservation and management measures, heavy and non-sustainable exploitation of marine resources such as bêche-de-mer, lobsters, clams, and shells has caused productivity declines in many of these resources. This situation has led some SIDS to implement conservation measures (e.g. size limits, closed areas and seasons, or more radical means such as outright harvesting bans) as a means of trying to rehabilitate stocks for some resources (e.g. bêche-de-mer).

[6] While SIDS recognize the need to foster policies that will facilitate economic diversification and structural adjustment, many of them are constrained because of locational and physical factors. All SIDS are net aid receivers and many of them are heavily dependent on aid. Although some SIDS have reasonable prospects for becoming financially self-reliant, this is not an option for many of them.

[7] Prior to the finalization of the paper and its submission to COFI, the Alliance of Small Island Developing States considered informally the scope and contents of the paper and it was reported to FAO that the paper was supported. In addition, at the time of COFI the SIDS from the South Pacific met to consider the paper and they expressed appreciation to FAO in taking this fisheries initiative.

- urged FAO to utilize funding for the SIDS programme of assistance, as appropriate, from internal sources, such as the Technical Cooperation Programme, and also seek finance from the international donor community for the implementation of the programme of assistance.

The Hundredth and Eighth Session of the FAO Council, held in Rome from 5 to 14 June 1995, endorsed the conclusions and recommendations contained in the Report of the Twenty-first Session of the Committee on Fisheries. Moreover, "...The Council was also informed that a comprehensive fisheries programme was being elaborated for Small Island Developing States (SIDS) which was seen as an important means of providing assistance to these States".[8]

At the 1984 *FAO World Conference on Fisheries Management and Development*, the special needs and circumstances in fisheries of SIDS were recognized, and in the last decade FAO has sought to address those needs in a responsive manner. Furthermore, in 1992 FAO convened, in Barbados, the *Inter-Regional Conference on Small Island Countries on Sustainable Development and Environment in Agriculture, Forestry and Fisheries*, and will follow up this initiative with two sub-regional expert consultations on sustainable development in agriculture, forestry and fisheries in the South Pacific in Samoa in 1996, and later in Barbados for the Caribbean.

The Programme of Assistance proposed for SIDS in this paper represents a consolidation and extension of FAO's past commitments to SIDS and incorporates post-UNCED developments based on:

- information provided by FAO in 1994 to the United Nations *Administrative Committee on Coordination/Subcommittee on Oceans and Coastal Areas* concerning FAO's response to the implementation of Part G (Sustainable development of small islands) of Chapter 17 of Agenda 21,[9] and

- the outcome of 1994 UN sponsored *Global Conference on the Sustainable Development of Small Island Developing States: The Programme of Action for the Sustainable Development of Small Island Developing States.*

Objectives

The objectives of the Programme are to enable SIDS to adopt and implement policies and measures to ensure that:

- the capacity of fisheries administrations in SIDS is strengthened,

- fisheries resources are conserved, managed, developed and utilized in a rational manner,

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[8] FAO. 1995. "Report of the Hundred and Eighth Session of the Council of FAO". *Document CL 108/REP*. FAO. Rome. p. 5.

[9] FAO (Fisheries Department). 1994. *FAO's Response to Agenda 21.17*. Rome. (mimeo). 15p.

- national food security is enhanced, and
- the utilization of fisheries resources continue to contribute to national social and economic development.[10]

With a clear focus on the special fisheries needs of SIDS, the Programme will complement other initiatives being undertaken within the United Nations system such as the implementation of the 1994 *Programme of Action for the Sustainable Development of Small Island Developing States.*

The objectives of the Programme are mutually consistent and re-inforcing in that they recognize the fundamental need for sound and rational fisheries conservation, management, development and utilization. Such rationality is paramount if fisheries resources are to be harvested sustainably as a means, first and foremost, of providing food for internal consumption and, where opportunities exist, to ensure that the fisheries sector is in a position to support broader social and economic development.

Implementation

An FAO Fisheries Task Force on Small Island Developing States, chaired by the Fisheries Department, was established in 1995. Initially, the Task Force, within its technical competence, will guide the elaboration of the Programme, and subsequently act to oversee its effective implementation.

It is recognized that, in order to avoid duplication of effort, to ensure coordination and to facilitate the implementation of the Programme with maximum efficiency and benefit for SIDS, it will be prudent and necessary to cooperate with a range of national, regional and international fishery mandated organizations. In the course of implementing the Programme, contact will be maintained with the AOSIS, the principal international grouping of SIDS.

Funding

In its first phase the Programme will be established for a period of five years. In so doing, FAO is seeking extra-budgetary funding from the international donor community to enable the Organization to implement the Programme of assistance. FAO will establish a trust fund for this purpose.

SCOPE OF THE PROGRAMME

The fisheries programme of assistance addresses six separate, but closely related and consistent, areas in the fisheries sector. These areas are:

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[10] As part of their efforts to more effectively conserve and manage fisheries resources, FAO will encourage SIDS to participate fully in the implementation of the *Code of Conduct for Responsible Fisheries.*

Institutional strengthening and national capacity-building

The objective of the assistance in this area is to foster the development of effective and competent national fisheries administrations and to strengthen the fisheries conservation and management capacity of these administrations.

It is recognized that strong technical capacity is a pre-requisite for effective fisheries conservation and management. This consideration is well understood by SIDS, and within national financial and human resources limits, high priority is usually assigned to institutional strengthening and capacity-building in the fisheries sector because of its fundamental importance for food security and broader economic development.

In most SIDS national fisheries administrations are small and are actually, or potentially, frail. Often these administrations have less than 10 professional staff. As a result of their small size many administrations lack a full range of in-house fisheries expertise which is needed to facilitate the rational fisheries exploitation. Most SIDS are therefore reliant, on an *ad hoc* basis, on specialist fisheries conservation and management advice from multilateral (international and/or regional) and bilateral sources.

Administrative demands (e.g. normal day-to-day management responsibilities, vessel licensing, etc.) placed on SIDS fisheries personnel leave professional staff limited time and scope to engage in research or other work of a technical and scientific nature. Moreover, the smallness of fisheries administrations means that where staff are able to engage in research, their physical isolation, lack of ready access to published materials and research findings, and their inability to interact professionally with peers, severely constrain research and technical investigation.

A common feature of many SIDS fisheries administrations is the high rate of staff turnover. Continuity of policy and the maintenance of "corporate memory" is therefore impaired. It is very common to find personnel trained in fisheries working in other ministries, or regional and international organizations, migrating overseas, or moving to the private sector. Consequently, an attrition rate of 50 percent for qualified fisheries personnel in SIDS is common.

As a means of strengthening national capacity in the fisheries sector, the merits of international cooperation among different groups of SIDS is recognized and encouraged by FAO. Through Technical Cooperation Among Developing Countries (TCDC) exchanges, and "twinning" arrangements with institutions in developing or developed States, important advances can be made in enhancing national fisheries capacity in SIDS.

FAO is well placed to provide policy guidance and advice on options available to SIDS as to how they might strengthen national fisheries administrations.

Enhanced conservation and management of EEZ fisheries

The objectives of the assistance in this area are to:

- intensify inshore fisheries conservation and management drawing, where appropriate, on traditional fisheries knowledge and management practice, and

- institute measures to relocate fishing effort from inshore to offshore areas so that the resources of the EEZ are utilized more fully and more rationally.

In tropical inshore fisheries stocks are biologically fragile, and in unmanaged fisheries or damaged environments, such stocks are easily overexploited. Inshore stocks are almost exclusively targeted by small-scale operators who fish for subsistence purposes, and where possible, to earn cash. Many of these fisheries are mixed species fisheries, though single species fisheries are often targeted on a seasonal basis.

In proximity to urban areas, or where there are heavy population concentrations around semi-enclosed lagoons (e.g. in atoll States), inshore resources are heavily fished, if not overfished, and are in need of effective conservation and management to prevent further degradation.

In many SIDS there is usually little information concerning the:

- dynamics or status of particular fish stocks, and

- socio-economic aspects about how particular fisheries are organized and exploited.[11] However, this information, or a good proxy for it, is required as a primary and essential foundation block for rational fisheries management.

In implementing fisheries conservation and management arrangements in those SIDS where island communities consist largely of indigenous peoples, efforts should be made to build on traditional systems of fisheries management. It is being increasingly recognized that contemporary approaches to fisheries conservation and management have failed to achieve sustainable resource use in SIDS, and that traditional management practice which acted to regulate fishing effort (resource access and exploitation by user groups), might be used to support conservation and management efforts.[12]

Some SIDS have adopted fisheries conservation and management programmes aimed at reducing fishing effort on inshore stocks by limiting the number of fishermen that can operate in such fisheries. In support of effort limitation schemes these SIDS have introduced measures to assist small-scale commercial fishermen to move to fisheries further offshore, including the outer reaches of the EEZ, where resources are generally believed to be more robust and not subject to the same level of fishing pressure as those resources in inshore areas.

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[11] In support of management programmes, scientific and social and economic assessments should be undertaken routinely by fisheries administrations. Where this is not possible because of limited national capacity, SIDS might be assisted by regional organisations and national/regional universities, or consider affiliation with foreign fisheries laboratories and research institutes, as a short- to medium-term measure, until national capacity can be strengthened. Such organizations could advise on the implementation of conservation and management programmes that would facilitate sustainable resource use. Assistance, particularly of a shorter-term nature, might also be rendered by international and regional organizations.

[12] FAO along with other national, regional and international organizations recognize the important contribution that traditional practice can make to contemporary fisheries conservation and management practice in SIDS. As a means of trying to build on traditional fisheries management systems, FAO has initiated work with SIDS to explore ways in which traditional fisheries management might be incorporated into conservation and management planning.

In relocating fishing effort to target offshore stocks, SIDS have pointed out that assistance is required to ensure that fishers operating on an extended range basis do so in a safe manner. Indeed, some SIDS have noted that accidents and the loss of life at sea has had a negative demonstration effect on conservation and management efforts.

In cases where SIDS lack national fishing capacity to utilize fully the fisheries resources within their EEZs, an obligation exists under the 1982 *United Nations Convention on the Law of the Sea* to permit surplus stocks to be harvested by licensed foreign fleets. SIDS are aware of this obligation but some of them may need policy advice on the most appropriate and beneficial options available to maximize financial and other returns from licensing arrangements with foreign fleets.

Many SIDS have benefited from the promotion of sports and other fisheries that are an integral component of eco-tourism. Usually such fisheries yield significantly higher financial returns than commercial fisheries that might target the same stocks. However, it is recognized by SIDS that the existence of sport and other fisheries depend on the presence of soundly managed stocks and that effective conservation and management measures need to be taken to ensure that these stocks are exploited on a sustainable basis. For many SIDS the conservation and management of sports fisheries presents a new challenge.

Fisheries monitoring, control and surveillance (MCS) is an integral and essential component of effective conservation and management. The purpose of MCS is to ensure that agreed fisheries conservation and management measures are implemented. As SIDS introduce such measures to prevent excessive exploitation, appropriate MCS arrangements should be implemented at the same time.

As part of its assistance to enable SIDS to utilize their fisheries resources more fully through an enhanced distribution of fishing effort, FAO will continue to provide a range of policy advice including:

- ways to secure better spatial distribution of fishing effort within EEZs,
- measures that might be adopted for fishers to re-equip for operations in new offshore fisheries (infrastructure development, vessels, gear and training requirements, safety at sea, credit needs, post-harvest handling advice, and market intelligence), and
- possibilities for the licensing of foreign fleets within EEZs.

Improved post-harvest fish management and marketing

The objectives of the assistance in this area are to facilitate:

- better post-harvest handling to reduce losses,
- enhanced marketing of fish and fishery products (as a means of reducing dependence on imported fish and other protein), and

- where appropriate and possible, fish exports.

Fish shortages in urban areas in many SIDS are due in part to technological, logistical and organizational constraints associated with moving product from rural areas with surplus fish to urban centres where fish is scarce. Three constraints, in particular, inhibit the domestic transfer of fish:

- a lack of ice and/or refrigeration to hold catches until they can be sold,
- a lack of retail outlets and high fish prices, and
- a lack of appropriate, reliable and affordable transportation.

Distance from international markets for many SIDS constrains their ability to deliver products to these markets, although the increasing availability of air transportation for the international marketing of high valued species of fish has enabled a major constraint to be overcome. However, in order for SIDS to maximize financial and employment benefits from their fisheries resources, on-going attention must be devoted to enhanced post-harvest handling practices and marketing potentials. FAO directly, or through the Regional Fish Marketing Information and Technical Advisory Services, is providing appropriate marketing information and contact with potential buyers.

Safety at sea

The objective of the assistance in this area is to provide technical and policy advice relating to appropriate systems and measures to be adopted to enable fishers to operate safely in extended range fisheries.

Each year large numbers of fishers from SIDS are lost at sea. Very often casualties and costly search and rescue missions could have been avoided if:

- fisheries had taken basic safety precautions, and
- appropriate safety regulations and systems had been in place and enforced.

Education is required to acquaint fishers and those responsible for fisheries conservation and management, as well as those responsible for maritime safety services (fishing-vessel activities), with regard to basic safety needs and precautions. Technical assistance is needed to help SIDS establish policies, training schemes, and to implement systems to protect fishers that move to more distant fishing grounds as part of the conservation and management efforts to relocate fishing effort.

FAO has promoted consistently safety at sea for the fishers of SIDS and has provided advice and technical assistance to SIDS concerning safety at sea. It is important to build on past assistance by providing advice on a continuing basis to SIDS as a means of supporting their fisheries conservation and management efforts.

Strengthening the economic role of national fisheries industries and the privatization of fisheries investments

The objectives of the assistance in this area are to:

- strengthen the economic role of national fisheries industries by facilitating fisheries sector development through the enhancement of existing industry and establishment of new industry, and

- facilitate the privatization of public investments in the fisheries sector as a means of promoting more competitive industries that are capable of making greater contributions to national social and economic development.

In the past for financial and technical reasons, many SIDS have not been in a position to take full economic advantage of their fisheries resources. Consequently, the development potential of the fisheries sector, in terms of generating both primary and secondary economic benefits, has not been realized fully.

SIDS are committed to securing greater economic benefits from the fisheries sector, and many SIDS are now actively promoting policies geared to this objective. Whereas in the past attention focused primarily on securing adequate remuneration from the fishermen engaged in harvesting fisheries resources, SIDS are encouraging shore-based handling and value-added processing. Such policies are intended to have positive impacts on trade balances, the employment of nationals, etc.

As part of broader economic and structural adjustment programmes, many SIDS are committed to improving the efficiency of State-owned enterprises and/or to the privatization of some State-owned fleets and processing facilities. From experience in non-SIDS, the privatization of such investments is not always an easy task nor is its success assured.

Since privatization is very much a new experience for many SIDS, and recognizing that the impact of wrong or inappropriate decisions could adversely affect national social and economic development, caution must be exercised in moving industry from the public to the private sector.

Aquaculture and inland fisheries conservation, management and development

The objectives of the assistance in aquaculture are:

- where feasible and appropriate, to introduce or strengthen aquaculture and inland fisheries, and

- to ensure that culture practices, if introduced, are compatible with SIDS environments and their ecosystems.

The development of aquaculture in the AOSIS countries is rather heterogeneous both in terms of relative economic importance and in terms of efforts developed by the Governments. However, in some regions the results obtained in the more aquaculturally developed countries can be adapted to other countries thus justifying the idea of creation of networks with leading centres. Since in most cases the level of resources which can be allocated to aquaculture research and development in the countries of this group is rather limited, the concept of networks can be seen as an efficient regional mechanism to speed up development and to initiate activities which otherwise would not be prioritized by the national government due to the limited economic weight of the subsector.

In most cases the economically important forms of aquaculture development in the SIDS are based on coastal aquaculture or mariculture, and are usually export oriented except in the case of the larger territories with substantial land mass where freshwater aquaculture may also have a domestic economic potential. Against coastal aquaculture enterprises the AOSIS countries have a high incidence of natural climatic disasters. The rather fragile culture facilities in the coastal waters or in the open seas cannot usually stand tropical storms and this is excessively risky for culture of species with long rearing cycles. In the case of species with faster growth rates, or which can reach marketable sizes in short time, there exists the fact that these characteristics are often associated with carnivorous species posing the problem of procurement of complete feeds which usually are difficult to produce locally due to the lack of ingredients or the limited capabilities of the local feed industries.

Although certain forms of aquaculture have been demonstrated to be technically viable in SIDS, it is generally difficult for SIDS to achieve economies of scale in production, particularly in the face of competition of better geographically placed, high volume producers. However, despite these constraints there are some national and regional aquaculture programmes in SIDS focusing on the production of high value species like pearls, shrimp, marine fish, bêche-de-mer, etc., which may exploit either the peculiarities of the regional, or relatively near markets or the particular ecological conditions of the countries. In addition extensive forms of aquaculture may be utilized for reef management, through the restocking of species which have been depleted through overfishing. These practices require however detailed baseline studies and a favourable attitude both from the government but especially from the local communities in charge of the exploitation and management of the reefs.

Some larger SIDS have inland resources that have supported traditional fisheries. More extensive exploitation of these fisheries, due to increasing rural populations and commercial possibilities in urban centres, poses conservation and management problems that need to be addressed to ensure that these resources are harvested sustainably.

PROGRAMME RELATIONSHIP WITH THE CODE OF CONDUCT FOR RESPONSIBLE FISHERIES

The Code of Conduct for Responsible Fisheries was adopted by the FAO Conference at its Twenty-eighth Session in October 1995. A voluntary instrument, the Code sets out the principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. The Code recognizes the nutritional, economic, social, environmental and cultural importance of fisheries and the interests of all those concerned with the fishery sector. The Code takes into account the biological characteristics of the resources and their environment and the interests of consumers and other users. States and all those involved in fisheries are encouraged to apply the Code and give it full effect.

In addition to an article on general principles, the Code contains specific articles concerning fisheries management, fishing operations, aquaculture development, integration of fisheries into coastal area management, post-harvest practices and trade and fisheries research. It also has an article relating to the special requirements of developing countries.

The Code, in itself, is a comprehensive instrument, taking account of other important international instruments that have been concluded. It is to be interpreted and applied in conformity with the relevant rules of international law, as reflected in the 1982 *United Nations Convention on the Law of the Sea.*[13]

With respect to the special requirements of developing countries, the Code takes into account the capacity of developing countries to implement the recommendations of this Code, which should be duly taken into account. In order to achieve the objectives of this Code and to support its effective implementation, countries, relevant international organizations, whether governmental or non-governmental, and financial institutions should give full recognition to the special circumstances and requirements of developing countries, including in particular the least-developed among them, and *small island developing countries.* States, relevant intergovernmental and non-governmental organizations and financial institutions are encouraged to work for the adoption of measures to address the needs of developing countries, especially in the areas of financial and technical assistance, technology transfer, training and scientific cooperation and in enhancing their ability to develop their own fisheries as well as to participate in high seas fisheries, including access to such fisheries.

This Programme of assistance will be used as a vehicle to assist SIDS in the implementation of the Code. Within the context of projects that will be implemented under the Programme, attention will focus on ensuring that the principles and objectives of the Code are furthered. In this way the projects will contribute in a material and positive way to facilitating responsible fisheries conservation, management, development and resource utilization in SIDS.

IMPLICATIONS FOR CARIBBEAN SEA SIDS

Fisheries are important in the Caribbean region for food and employment, and sports fishing and water sports are a primary, and highly valuable component of the tourism industry. The implementation of the Programme of Assistance will enable SIDS to strengthen current efforts to foster rational use of fisheries resources, thereby facilitating long-term sustainability in the sector.

In common with SIDS in other parts of the world, SIDS in the Caribbean Sea face immediate problems with respect to fisheries conservation and management. This Programme, when operational, will permit SIDS, on a request basis, to draw on technical assistance to supplement domestic technical capacity. The six areas where technical assistance will be available represent critical areas for improving the status of the fisheries sector overall and in permitting it to continue to make important social and economic contributions to the well-being of SIDS in the region.

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[13] Nothing in the Code prejudices the rights, jurisdiction and duties of States under international law as reflected in the Convention. The Code is also to be interpreted and applied: a) in a manner consistent with the relevant provisions of the 1995 *Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks*; b) in accordance with other applicable rules of international law, including the respective obligations of States pursuant to international agreements to which they are party, and c) in the light of the 1992 *Declaration of Cancun*, the 1992 *Rio Declaration on Environment and Development*, and *Agenda 21* adopted by the 1992 *United Nations Conference on Environment and Development* (UNCED), in particular Chapter 17 of Agenda 21, and other relevant declarations and international instruments.

Importantly for the region, the Programme will be a vehicle to assist with the implementation of the Code of Conduct for Responsible Fisheries. The Programme will, through the technical assistance provided to SIDS, focus on the critical elements of the Code within the six areas of the programme that have been identified as priorities for SIDS world-wide.

CONCLUSION

The implementation of the FAO Programme of Fisheries Assistance to Small Island Developing States will concentrate and strengthen work undertaken by the Organization to meet the special fisheries needs of SIDS. It is now well recognized internationally that SIDS have particular needs and circumstances, and from the fisheries perspective, this Programme will be geared towards meeting those needs.

It is anticipated that the Programme will take effect in 1997. COFI will be advised in March 1997 of progress with the elaboration and implementation of the Programme. The international donor community will be called on to financially support the Programme, and SIDS, directly through reports to FAO bodies, and indirectly through AOSIS, will be keep abreast of developments with funding and implementation of the Programme.

ANNEX 1

MEMBERSHIP OF THE ALLIANCE OF SMALL ISLAND DEVELOPING STATES

Despite its wide international usage, there is no internationally agreed definition of a 'small island developing State' (SIDS). While certain proposals have been made to more precisely define a SIDS in terms of measurable units (e.g., land area and/or population), such a definition has not been adopted. In this paper SIDS are deemed to be those States that are members of AOSIS, a recognized grouping within the United Nations.

AOSIS is "... an ad hoc coalition of developing countries which share common objectives on environmental and sustainable development matters, particularly those relating to the United Nations Framework Convention on Climate Change. Members are small island or low-lying coastal developing countries which share similar or compatible levels of economic development, are members of island regional groupings or organizations, and which are particularly vulnerable to the adverse consequences of climate change such as sea-level rise, coral bleaching, and the increased frequency and intensity of tropical storms."[14]

The membership of AOSIS includes both UN and non-UN members, though some of the non-UN members (Cook Islands, Kiribati, Nauru, Tonga, Tuvalu and the five observer territories) are members of other UN agencies such as FAO. The grouping also includes, as observers, five dependent territories.

The AOSIS was established so that the interests of SIDS could be represented more effectively in international debate and decision making concerning matters of fundamental importance to SIDS. In addition to focusing on climate change and sea level rise, AOSIS has played a key and leading role in the negotiating of the 1994 Programme of Action for the Sustainable Development of Small Island Developing States.

With AOSIS there are five regional sub-groups consisting of SIDS from the Atlantic Ocean (Cape Verde, Guinea-Bissau and Sao Tome and Principe), the Caribbean Sea (Antigua and Barbuda, Bahamas, Barbados, Belize, Cuba, Dominica, Grenada, Guyana, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago), the Indian Ocean (Comoros, Maldives, Mauritius, and the Seychelles), the Mediterranean Sea (Cyprus and Malta), the South Pacific Ocean (Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu) and the South China Sea (Singapore). The observers are American Samoa, Guam and Niue from the South Pacific, and the Netherlands Antilles and the US Virgin Islands from the Caribbean.

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[14] Extracted from a data sheet giving the members and other information relating to the Alliance of Small Island States (AOSIS). The information was provided in 1994 to FAO by the Permanent Mission of the Republic of Trinidad and Tobago to the United Nations, New York.

THE STATUS OF MARINE FISHERY RESOURCES AND FISHERIES MANAGEMENT IN THE LESSER ANTILLES

by

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1. INTRODUCTION

The Lesser Antilles is composed of a number of territories, each of which is an island or group of islands that lie between the high seas of the west central Atlantic Ocean and the eastern reaches of the Caribbean Sea, Figure 1. The sub-region was defined by WECAFC (Western Central Atlantic Fisheries Commission) as extending from and including the Virgin Islands in the North to Grenada in the South and including Barbados. This island chain comprises one of the most compact aggregation of nations in the world. It includes seven independent nations (Antigua & Barbuda, Barbados, Dominica, Grenada, St. Christopher & Nevis, Saint Lucia and St. Vincent & the Grenadines) dependencies of the United Kingdom (Anguilla, British Virgin Islands, Montserrat) dependencies of France (Martinique, Marie Galante, Guadeloupe, St. Martin, St. Barthelemy); dependencies of The Netherlands (St. Eustatius, St. Maarten) and territories of the United States of America (US Virgin Islands).

Physically the island States of the Lesser Antilles are generally small, sometimes being comprised of a number of tiny islands. Their populations are also small but quite often the population density is very high (from 72 persons per km^2 in the British Virgin Islands to 590 persons per km^2 in Barbados). They have few natural resources and their economies are centered mainly around agriculture, tourism and light industry. Comparative studies of the Caribbean by Gajraj (1978), Putney (1979) and UNEP/ECLAC suggest that the living natural resources in the Lesser Antilles are under greater stress than anywhere else in the region. The resource base of the islands is so limited that virtually all their resources are critical to the maintenance and development of their human populations.

The people of the Lesser Antilles are big consumers of fish, about 25 kg per head per year. In comparison, per capita consumption in the Greater Antilles (Cuba, Haiti, Dominican Republic and Jamaica) is 12.5 kg per annum. As in the past, a large part of this high demand is met by imports since local production cannot satisfy this high demand. An estimated 18,900 t was imported in 1991 at an estimated cost of US$ 76 million (FAO Yearbook of Fishery Statistics Vol. 73, 1991).

1.1 Characteristics of the Fisheries

Most of the islands of the Lesser Antilles have relatively narrow shelf areas. However, substantial shelve areas exist around the Virgin Islands, Anguilla, St. Martin/St. Maarten/St. Barthelemy, Saba, Antigua/Barbuda and between St. Vincent and Grenada (The Grenadines). The shallow areas are characterized by coral reefs and sea-grass beds. There are also several banks scattered through the region. The general oceanic productivity of the region is low since there are no important upwellings or currents; and wetlands (mangroves), bays, estuaries and lagoon areas are small. Water exchange takes place between the Caribbean Sea and the Atlantic Ocean through the channels existing between the islands thereby concentrating food and pelagic fish in the vicinity.

As a result of their small continental shelf areas the islands do not have abundant demersal fish, mollusc or crustacean stocks. In most islands these resources are fully exploited or even overfished. The most abundant stocks are the offshore pelagics most of which are migratory and move through the islands on a seasonal basis.

The fishing industry of the area is relatively simple consisting of primary harvesting and tertiary marketing with little or no secondary processing, although some capacity has been developed in Barbados, Saint Lucia, Grenada, British Virgin Islands and Antigua & Barbuda. Harvesting is primarily artisanal with fishers operating from small boats utilizing relatively simple gear consisting mainly of fish traps, handlines, trolling lines, gillnets, trammel nets, beach seines and longlines (palang). There have been no successful attempts to develop industrial fisheries.

Since 1990, larger boats (21.5 - 27.5 m longliners) with specialised equipment are being introduced to the industry through foreign vessels, mainly from the USA, which are targeting specific species such as the swordfish and tuna for the US and Japanese markets. By 1993, seven of the foreign built longliners, owned by local entrepreneurs, were operating out of Barbados. With assistance from FAO, Grenada in June 1989 introduced a 10 m fishing catamaran that was used for pole and line live bait fishing, trolling for tuna, and pelagic and demersal longlining. The catamaran can achieve a speed of 12 knots required for tuna trolling in addition to having a shallow draft. Unfortunately, the catamaran was damaged beyond repair during a storm in 1990 before a proper evaluation of its suitability for harvesting the pelagic resources in the Lesser Antilles.

At present, in the Lesser Antilles, anyone who chooses to fish may do so (with the exception in some cases of expatriate residents who may need special permits) and as such is classified as an open-access fishery. Since there is no control of fishing effort, and coupled with the fact that demand highly exceeds supply, overfishing of the nearshore demersal resources, and especially of the economically important species such as conch and lobster, is quite probably the case.

1.2 Ecosystems and Species

Coral reefs, sea-grass beds and mangroves are the three major ecosystems responsible for much of the nearshore and shelf fishery resources of the Lesser Antilles. These habitats are sites of high biological productivity, serve as nursery areas and also provide shelter for the larvae and juveniles of many economically important species.

The importance of these habitats to fisheries has been widely acknowledged. In the Lesser Antilles these habitats are being exposed to the impacts of coastal developmental activities related mainly to urbanization, tourism, agriculture and light industry.

The fishery resources of the region can be grouped into the following eight major species groups:

1.2.1 Conch (Strombus gigas) are seldom found in depth exceeding 30 m and being relatively sedentary are easily exploited by divers. It is the most important edible mollusc in the Lesser Antilles and is considered to be overfished. It was declared an 'economically endangered species' by the International Union for the Conservation of Nature and Natural Resources (IUCN Red Data Book, 1983).

1.2.2 Spiny Lobster: Panulirus argus is the most common species even though other Panulirus spp. and Scyllarus spp. are occasionally landed. Adults, marketable before sexual maturity, can be found in depths ranging from 2-200 m and being relatively sedentary are easily exploited. P. argus has a long planktonic larval life (6 months or more) which makes it difficult to determine the origin of the stock. In the easily accessible areas of the region lobster stocks have been severely depleted. Putney (1982) described it as an `economically endangered species'.

1.2.3 Sea Urchins: White sea urchins (Tripneustes esculentus) are harvested as `sea eggs' in a number of the islands of the Lesser Antilles. It has a planktonic larval stage of about four weeks during which its distribution is unknown. The adults are sedentary and can be found in shallow habitats which makes them vulnerable to overexploitation as demonstrated by the collapse of the fishery in Barbados.

1.2.4 Algae: Gracilaria sp. (sea moss) has been traditionally harvested in most of the islands even though several other species occur in the region. It is used mainly as food and in drinks. Gracilaria has been successfully cultured in Saint Lucia and the technology is being transferred to other Eastern Caribbean Islands.

1.2.5 Turtles: All marine turtles are acknowledged to be endangered species. Green (Chelonia mydas), hawksbill (Eretmochelys imbricata), loggerhead (Caretta caretta) and leatherback (Dermochelys coriacea) are commonly found and captured throughout the Lesser Antilles. Marine turtles are long-lived and late maturing and must return to the beach where they were hatched to lay their eggs. These characteristics make them vulnerable to overharvesting. Green, hawksbill and leatherback turtles have been declared `economically important and endangered species' by the International Union for the Conservation of Nature and Natural Resources (IUCN Red Data Book, 1983.)

1.2.6 Nearshore Demersal/Reef Fishes: The majority of nearshore demersal fish in the Lesser Antilles are associated with coral reefs. Traps are the main gear used for harvesting reef fishes and catch many species simultaneously. The multispecies nature of reef fishery makes it difficult to use traditional single species assessment and management methods. The trap fishery is probably the most economically important in the region in that it employs the majority of the fishers and vendors and accounts for about 50% of the fish consumed. Most of the trap fishers fish part-time and land their catch at a large number of sites thereby facilitating distribution. It has been widely accepted that there is overfishing of nearshore demersal resources although there is no documented evidence. The marked absence of large individuals from the catch and the scarcity of some species (e.g. parrot fishes) and low catch rates on traditional fishing grounds are indicators of overfishing. Despite limitations of available data there was sufficient information to indicate that most stocks of reef species are fully or overexploited in most islands.

1.2.7 Deep Water Demersal Fishes: These are mainly snappers and groupers which are often found on the edge of the shelf or on deep banks (145-270 m). Depending on the depth, handlines or traps are used to exploit these species. It is generally felt that these fisheries are probably underexploited although there are reports of localized depletion. The habitat of these species (crevices, holes, steep rocky slopes) make them difficult to fish.

1.2.8 Pelagic Fishes: Pelagic species can be divided into two groups. Coastal pelagics which include a variety of small pelagic fishes such as schooling clupeids, jacks and ballahoo. These are exploited primarily by beach seines, gillnets and cast nets. Although there is no documented evidence on the state of exploitation of the fishery a few islands have reported a decline in catches.

The oceanic pelagics include tunas (bluefin, yellowfin, and skip jack), billfishes, dolphin, kingfish, jacks, flyingfish and sharks. These species move through the Atlantic side of the Lesser Antilles on a seasonal basis (November - June) and account for a major part of the fish landings in most of the islands of the Lesser Antilles. This fishery is still growing and the need for a regional approach to management is critical to avoid overcapitalisation. These resources are generally considered to hold the greatest potential for increasing production in the region even though information on their current state of exploitation is lacking. These species are at present exploited by boats ranging from canoes with outboard engines to large (12 - 17 m) launches with ice storage facilities.

2. PRINCIPLES IN THE MANAGEMENT OF LIVING NATURAL RESOURCES

2.1 Legal Framework

2.1.1 The Law of the Sea Convention and Living Marine Resources

The United Nations Convention on the Law of the Sea of 1982, which came into force in 1995, resulted in the global acceptance of the coastal states' authority to manage fisheries within their jurisdiction. This authority created new opportunity and responsibilities as well as problems of adjustments to countries operating distant water fleets (e.g. Barbados).

The Law of the Sea Convention has made it necessary for most countries to revise their fisheries legislation. The Convention accords to all coastal states the jurisdiction to exploit, conserve and manage the living marine resources within their exclusive economic zone (EEZ). It should be emphasized that this right includes certain responsibilities which are stipulated in the Convention. As appropriate, the Convention requires the coastal state to cooperate with competent international, regional and sub-regional organizations to determine proper management and conservation measures and their implementation.

With the assistance of FAO the majority of the island states have revised their fisheries legislation in line with the 1982 UN Convention on the Law of the Sea and other international legal instruments.

2.2 EEC Common Fisheries Policy

The common fisheries policy of the European Economic Community (EEC), which came into effect in January 1983, covers Martinique and Guadeloupe as overseas departments of France. The policy calls for common rules for fishing in the maritime waters, and co-ordination of structural policies, of Member States to promote the harmonious and balanced development of the fishing industry (Council Regulation (EEC) No 101/76). Provision is made for the European Council to adopt the necessary conservation measures for fish stocks in the maritime waters of one or another Member State. Even though EEC regulation may apply, the Member State could pass legislation concerning the conservation and management of its fishery. Member states of the Commission will have to be notified of these laws, regulations and administrative rules.

2.2.1 Marine Fishing Act covering Guadeloupe and Martinique

The Marine Fishing Act of January 1852 with amendments, the last of which was made in 1986, provides the guidelines for fishery regulations in Guadeloupe and Martinique. The Act takes into consideration the EEC Common Fisheries Policy concerning conservation and management of the fisheries resources.

2.3 ECS Harmonized Fisheries Legislation

The Organization of Eastern Caribbean States (OECS) as a sub-regional grouping within the Caribbean Community (CARICOM) became a reality in July 1981. The main purpose of the OECS is to promote co-operation, to seek to achieve the fullest possible harmonization of foreign policy, and to promote economic integration among Member States. Member States are Antigua & Barbuda,Dominica, Grenada, Montserrat, St. Christopher and Nevis, Saint Lucia and St. Vincent and the Grenadines; the British Virgin Islands has Associated Status and Anguilla, Observer Status.

With these objectives in mind and in accordance with the Law of the Sea Convention, the OECS Member States have agreed to co-ordinate, harmonise and pursue joint policies in matters relating to the sea and its resources and mutual defence and security. Three OECS/FAO sponsored fishery workshops held in 1983 and 1984 led to the preparation of draft harmonized fisheries laws and regulations for the OECS Member States. With minor changes, all Member States of the OECS have enacted the harmonized fisheries laws and regulations. A few States (eg. Dominica) have experienced delays in the promulgation of the harmonized fisheries regulations. Barbados, not a member of the OECS, changed their fisheries laws and regulations to be in harmony with that of the OECS countries. The Netherlands Antilles have also enacted new fisheries laws in 1990 which are similar to the OECS harmonized fisheries laws.

The OECS was actively seeking FAO's assistance to update their harmonized fisheries leglisation in line with the Agreement to Promote Compliance with International Conservation Measures by Fishing Vessels on the High Seas (Nov. 1993), and the UN Agreement on the Implementation of the Provisions of the 1982 Convention of the Law of the Sea related to Straddling Fish Stocks and Highly Migratory Fish Stocks (Aug. 1995).

2.4 Magnuson Fishery Conservation and Management Act

The Magnuson Fishery Conservation and Management Act, Public Law 94265, approved by the United States Congress in April 1976, created eight Fishery Management Councils for the conservation and orderly utilization of the fishery resources of the United States of America (U.S.A.). This federal legislation established a national Fishery Conservation Zone (FCZ) extending from seaward boundaries of the coastal states to 200 nautical miles, and exclusive US fishery management authority over fish resources within the FCZ with the exception of the highly migratory tunas. The Federal Government, through the councils, has managerial responsibility in the FCZ.

The Caribbean Fishery Management Council (CFMC) is responsible for the orderly utilization of the fishery resources in the FCZ of the Commonwealth of Puerto Rico, and the US Virgin Islands which is included in the Lesser Antilles region. The Council's major responsibility is the formulation of fishery management plans for single species or a group of species which can be managed as a unit, and does not engage in the enforcement of regulations contained in the management plans. Enforcement is the responsibility of the US Coast Guard and the National Marine Fisheries Service.

2.4.1 U.S. Virgin Islands Act 3330

The US Virgin Islands Act 3330, approved in 1972, assigns commercial fishing promotion to the US Department of Commerce and all other fishery matters, including enforcement, to the Department of Conservation and Cultural Affairs of the US Virgin Islands.

The Act provides for jurisdiction of all waters out to a distance of either 12 miles from the shoreline or to any international boundary located within the 12 mile limit, whichever is shorter. All aquatic life and all waters, including inland ponds over 50 acres, are declared the property of the Virgin Islands and of common ownership and public use.

2.5 Guidelines to the Precautionary Approach to Fisheries

Guidelines to the Precautionary Approach to Fisheries (FAO, 1995) - emphasis that sustainable utilization requires the application of "prudent foresight" and suggest that this includes, amongst others, the following attributes.

a) The avoidance of changes that are not potentially eversible;

b) The prior identification of undesirable outcomes and of measures that will avoid them;

c) That any necessary corrective measures are implemented without delay and are rapidly effective;

d) That where there is uncertainly, primary attention should be given to conserving the productive capacity of the resource;

e) That the fishing and processing capacity should be in harmony with the production potential of the resource, to avoid continual social and economic pressure to over-exploit the resources in order to utilize this capacity;

f) That all fisheries should be conducted according to an explicit and appropriate management plan and that the administrative and legal framework exists to ensure implementation of the plan.

(a), b) and (c) refer more specifically to the resource and require good insight into the status and dynamics of the resource. The avoidance of irreversible changes and prior identification of undesirable outcomes, and identification of uncertainty presuppose a certain level of knowledge of the resource. Where there is uncertainty, the doubt should be used in favor of the resource as in (d).

2.6 Code of Conduct for Responsible Fisheries

It is generally accepted that the countries and all users of living aquatic resources have an obligation to conserve the resource and the ecosystems in which they occur, in order to optimise returns for the present users and to provide all possible options for future generations. This obligation underlines the Code of Conduct for Responsible Fisheries.

The Code of Conduct for Responsible Fisheries sets out principles and international standards of behavior for responsible practices with a view to ensuring the effective conservation and management and development of living aquatic resources, with due respect to the ecosystem and biodiversity. It also recognizes the nutritional, economic, social. environmental and cultural importance of fisheries, as well as the interests of those concerned with the fishery sector, the resource users, from fishers throughout the chain to the consumers. The Code, which was adopted by the Twenty-eight Session of the FAO Conference, November 1995, was voluntary. Nevertheless it encourages States and all those involved in fisheries to apply the Code and to give effect to it. The Code has provisions that take into account the difficulties that Small Island Developing States (SIDS) will have in implementing some of its provisions.

The Code is not considered a final product but will continue to evolve and be updated as the global fishery situation may demand in the future. For SIDS it will continue to be an important instrument safeguarding their position in the international arena.

3. INSTITUTIONAL STRUCTURE FOR FISHERIES MANAGEMENT

In most countries of the Lesser Antilles the State plays a leading role in all aspects of fishery policy by regulating management and conservation of the resources and through direct intervention in the implementation of policies through development programmes. Fisheries administrative structures range from the complex administration of the US Virgin Islands to the more simple, as in the OECS countries.

In the OECS countries it is normal to find fisheries located within a wider ministry concerned with agriculture and other matters. For example, in St. Vincent and the Grenadines fisheries policy is in the hands of the Fisheries Officer who is part of the Ministry of Trade, Industry and Agriculture. Taking into account the population, size, existing manpower, present importance of fisheries and present economic circumstances in many of the OECS countries, it is not practical to set up fisheries as a separate entity in most of them.

Although the present situation may create problems for implementing fisheries policy, the relative smallness of the Ministries can itself be an advantage in that it may allow for direct access by the Fisheries Officer to the Minister or other senior government officers such as the Permanent Secretary. However, no matter where the fisheries sector is located within government's administrative system, it is very important that the sector be given its appropriate share of development resources.

With the emergence of the extended fisheries jurisdiction under the UN Law of the Sea Convention the co-ordination of fisheries policy between governments and between governmental bodies responsible for scientific research, foreign affairs, co-operatives, marketing, merchant shipping, etc. in each country becomes more critical in the Lesser Antilles sub-region. The FAO Lesser Antilles Committee of the Western Central Atlantic Fisheries Commission (WECAFC) and the OECS/Natural Resources Management Unit (NRMU) are involved in the co-ordination of fisheries matters at the sub-regional level.

The OECS has established a fisheries unit within it Natural Resources Management Unit based in Saint Lucia. The responsibilities of the unit include assistance to OECS countries in the development and management of their fishery resources and the preservation of their marine environment, assistance in preparing national fisheries management and development plans, establishing a regional fisheries information centre and assistance to OECS governments in monitoring the application of fisheries laws and regulations.

It should be emphasized that, in the case of the small developing island states of the Lesser Antilles, fisheries administrative schemes should reflect the comparatively limited living resources in their EEZ and not be so elaborate that they utilize more bureaucratic resources than the resource itself is worth.

3.1 Staffing and Training

Most Fisheries Divisions in the Lesser Antilles are staffed by less than half a dozen professionals. They lack the required technical and support staff to administer and manage their respective fisheries, and to act as counterparts for projects financed and partially staffed by external agencies.

The economies of most of the islands cannot afford them the luxury of employing professionals in every discipline. For this reason fisheries officers and assistants should be trained as "general practitioners" rather than specializing, and be supported by "middle-technicians", who should be involved in basic data collection, applied research and extension. The objective of the fisheries division should be to make the optimum use of available resources by selecting priority management activities and do this well rather than spreading the resources too thin as is presently the case.

The sub-region needs experts and specialists in various subject areas related to fisheries but governments may not be able to employ and keep them for reasons mentioned. One suggestion is that the Universities and research institutions should play a more active role by employing such persons who could be available to assist the Islands and at the same time be involved in problem oriented research. The University environment is probably the only one that may be able to attract and keep a pool of specialists that could be shared within the region.

4. FISHERY MANAGEMENT PLANS

In the Lesser Antilles only the US Virgin Islands, through the Caribbean Fishery Management Council, has published fishery management plans. Management plans for the spiny lobster, shallow-water reef fish, Atlantic billfishes (except sword fish) and sharks and coastal migratory pelagic fish resources have been published. Draft management plans for deep-water reef fish, molluscs (conch and whelk), bait fish, crustaceans (other than spiny lobster), corals and ornamental aquarium fish have also been published for public comment.

The OECS harmonized legislation provides for the appointment of a Fisheries Advisory Committee to advise on the management and development of fisheries and also for the entering into arrangements or agreements with other countries in the region or with any competent regional organization concerning co-operation in fisheries management. The legislation requires the fisheries officer to prepare and keep under review a plan for the management and development of fisheries.

Even though there is adequate provision for licensing in the OECS legislation and regulations, there is no effective licensing system in place for either local or foreign fishers. There seems to be a general reluctance in most OECS countries to licence the local fishers and charge them the fees proposed in the regulations. In contrast, the US Virgin Islands, Barbados, Guadeloupe and Martinique have relatively effective licensing and registration systems.

4.1 Stock Assessment

The need for stock assessment is usually emphasized as one of the main limiting factors to fishery management in the Lesser Antilles. However, the determination of TAC (Total Allowable Catch) may not be realistic short or medium term objectives as the demands for data are great in relation to the resources available to the Islands. Therefore, in a situation with limited resources it will be better to continuously monitor the fisheries rather than focus on stock assessment. This does not mean that stock assessment should not be attempted if the resources are available. In any case monitoring the fishing industry is the foundation for stock assessment.

Several approaches could be applied. One is to look at the overall species composition in the markets. Comparisons could be made between areas at the same time or between different years in the same place. Changes could be taken as an indication of an effect of fishing. Such information coupled with relative prices and scarcity or abundance of certain species on the market could give an indication of the level of the stock. Also, monitoring relative abundance of "indicator species" (e.g. parrot fishes, squids) in fish markets can also provide an indication of whether or not the stocks are heavily fished. In addition, examination of the sizes of fish on the market could be interpreted as an index of fishing intensity.

Monitoring the rate of entry or exit from the fishery by both fishers and boats can give an indication of the success of the fishery. A visit to the boat-yards to check on the volume of orders for new boats can provide an indication of levels of profit in the industry and can serve as an early warning of the problem of over-capacity in the years to come, if there is a backlog of orders.

Discussions with fishers may also provide an invaluable insight into the state of the fishery and of the resources. For example, a short fishing trip resulting in enough fish without using much gear is probably a sign that the resources are in a good state while the opposite could be a sign of a depleted resource.

In the Lesser Antilles continuous monitoring of the industry is probably a more realistic short term and cost-effective objective rather than stock assessment. However, whatever the objective, reliable data are essential for effective management. In the small island states of the Lesser Antilles, with limited living marine resources in their potential EEZ, one should guard against elaborate administrative schemes and management measures that may utilize more resources than the resource itself is worth.

4.2 Data and Information

Most Islands of the Lesser Antilles have some type of data collection programme. The most common is the periodic collection of catch landings from selected landing sites. However, on-site follow-up has been sporadic and in some cases data have accumulated for years without being analysed. This has caused some administrators to question the allocation of resources to collect data which is of no apparent use.

One of the major constraints in preparing fisheries management plans is the paucity of reliable biological, social and economic data and information. Without adequate data it is difficult to give good advice on managing the fishery. The collection and or improvement of data should therefore be of high priority. Generally in the Lesser Antilles and especially in the OECS countries the resources (trained personnel, transport, finance, etc.) available for data collection are limited. At the same time, the fisheries are scattered, which suggests that data collection is likely to be more difficult and expensive than collecting data from an industrial fleet landing the same amount of fish.

Given these difficulties, it is more important to identify management objectives (for species or species groups, etc.), decide on which items of data are of maximum importance to meet these objectives and establish how these items could be collected in a cost-effective way, rather than to make attempts to collect all the data that would be desirable to have, even if that was possible. It is not necessary to collect data in a comprehensive census type manner. A well designed sampling system will produce data that is sufficiently accurate for all purposes. With the limited human and financial resources in the small islands this approach is recommended. An on-going data collection programme is necessary for monitoring the effectiveness and the measurement of achievement of management objectives. Based on this principle, and with the assistance of FAO and the Government of Canada, a harmonious on-shore data collection system for the OECS countries, Anguilla, Barbados, British Virgin Islands and Montserrat was initiated in July 1987. This effort is currently being supported by the CARICOM Fisheries Resource Assessment and Management Program. The effectiveness of this system will depend on the commitment of the fisheries administration as it was designed by taking into consideration the existing constraints. A similar system was introduced in Martinique. These systems should be evaluated and reorganized if necessary.

4.3 Community-based Management

Community based fisheries management was traditionally practised in the Pacific Islands (Johannes, 1978) but was succeeded by other concepts such as "open access" fisheries due to the imposition of Western culture. In the opinion of many investigators, "open access" fisheries have facilitated too rapid development in the quest for maximum profits while paying too little attention to conservation of the exploited stocks (Hardin, 1968; Berkes and Shaw 1986; Johannes 1978).

Attempts should be made to introduce and encourage community based management to the Lesser Antilles even though there is no record of "formal tradition" in the region. However, there are examples of fishers acknowledging traditional fishing rights to marine space and observing unwritten rules and regulations concerning conservation. Community based management has to be initiated on an experimental basis and implemented through fishers organizations. The OECS harmonized Fisheries Legislation views the establishment of Local Fisheries Management Authority as a tool to give local communities preferential fishing rights that could encourage not only self reliance but self restraint in harvesting.

This complex and little researched subject holds great significance for the management of coastal resources in the Lesser Antilles. It has the potential of reducing administrative costs to government, use of local knowledge and expertise, responding to the needs of the community and being acceptable to the resource users. Local commitment is essential for conservation. It has the potential to cultivate self confidence and self regulation at the local level and also to reduce the decline of coastal fisheries. These potentials are highly desirable to the Lesser Antilles due to the scarcity of human and financial resources.

However, the implementation of community based management does not mean ecologically sustainable fisheries would evolve overnight. It requires the fishers to assume leadership roles if it is to succeed and the enactment of appropriate policies to facilitate and encourage the process which will involve decentralising decision making and participation of the resource users.

5. REGIONAL COOPERATION

The forum provided by FAO through WECAFC and its associated Lesser Antilles Committee has contributed significantly towards regional co-operation and dialogue. Also, the establishment of the OECS/NRMU and the adoption of harmonized fisheries laws and regulations by OECS countries are major achievements towards regional co-operation in the management and development of fisheries in the Lesser Antilles sub-region.

Co-operation is being achieved through these bodies by exchanging information on living resources and on conservation and management measures being applied, the harmonization of collecting statistical data and efforts to establish a regional database and discussions on the management of shared resources. The activities and projects of FAO and WECAFC Working Parties on fishery resources, economics, planning and statistics, have contributed immensely towards co-operation in the above-mentioned areas.

A possible combination of interlocking zones after the delimitation of maritime boundaries, straddling stocks and the presence of highly migratory species could pose some difficulties for regional co-operation. Co-operation regarding highly migratory species such as tuna may be more complicated because the US does not view these resources as being within the control of the coastal state within its EEZ, while the other states of the Lesser Antilles hold the opposite view.

The OECS countries have also taken initiatives to co-operate in exchanging information on suspected illegal foreign fishing, establishing a registry for all foreign vessels, formulating guidelines for fisheries joint ventures and developing a common approach to negotiation of access by foreign vessels. Such forms of co-operation are particularly useful for the small island states of the sub-region and allows for implementation of regionally agreed measures concerning the conservation and management of the living marine resources.

6. ENFORCEMENT

Fishery laws and regulations are only likely to be effective if they are adequately enforced. Most laws of the sub-region make detailed provisions for the powers of competent authorities to enforce the law and for punishment for breaches of the law. Unfortunately, the fisheries administration in most OECS countries lack the required resources, both human and material, for an effective surveillance and enforcement programme and, as a result, there is very little inspection at landing sites, etc. For example, legislation protecting turtles has been in place for over 15 years or more yet the sale of turtle meat, eggs, shell products and stuffed juvenile turtles still takes place in public.

In many cases there is reluctance to enforce laws for which there is local empathy. One of the main reasons for the countries not applying the regulations is because issues related to fisheries management are usually complex, comprising socioeconomic and political issues as well as biological ones. This is particularly applicable in the Lesser Antilles where authorities sometimes avoid taking decisions in view of the unpopular nature of regulatory measures motivated by the precarious economic and social situations of small- scale fishers in most of the islands. The coastal communities which these fisheries resources support seem particularly exposed to social and economic problems and as a result the political will to enforce these regulations is usually absent. Therefore, under such circumstances the best the Fisheries Officer can hope for is to reduce some of the negative aspects of an uncontrolled fishery so that the fishery is some what better off than an unmanaged one.

Taking into consideration the difficulties faced by most fishery administrations in enforcing fishery regulations, and the importance of their implementations to conserve the resources, responsibilities of control could be assigned to the fishers of fishers groups. However, the co-operation of the resource users (fishers, vendors, hotels etc.) are essential for voluntary adherence to fishery regulations.

The degree to which management measures prove effective will vary in direct proportion to the extent they are applied and accepted by the users. Enforcement and acceptance of fishery regulations involve a number of variables which include resource user perceptions and participation, education, economic need and government enforcement capabilities. Thus it requires a programme that addresses these variables simultaneously.

It should be emphasized that the principal issue in enforcement and surveillance is cost-effectiveness in the light of the value of the Islands marine resources and whether other tasks need to be undertaken concerning defence, patrol of the territorial sea, etc., at the same time. However, enforcement should not be seen in terms of physical control of the EEZ but to encourage compliance with the fisheries laws and regulations through measures that are relatively cheap. For example, such measures could include port inspections, inspections at sea, regular communication with fisheries authority while fishing is in progress, issuing of licences and an education programme for fishers whose cooperation is vital.

7. POLLUTION AND ENVIRONMENT CONTROL

Fisheries management and conservation measures are very dependent on the existence of a wholesome marine environment. Generally the marine environment in the sub-region is considered to be comparatively healthy.

Although most fisheries legislation in the sub-region does not pay particular attention to environmental considerations there is a recognition of the inter-relationship between fisheries management objectives and the need to protect the marine environment. For example, certain methods of fishing are prohibited because of their destructive effects on the marine environment and its resources. The prohibition applies to the use of explosives such as dynamite and other noxious and poisonous substances for the purpose of killing, stunning, disabling or catching fish. In some cases, as in the OECS harmonized legislation, prohibition extends to the carrying on board or even the mere possession of these substances.

A number of countries in the sub-region have signed and or ratified the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean and the Protocol concerning co-operation in combatting oil spills in the Wider Caribbean Region, Table 5. The Convention, which is a comprehensive umbrella agreement for the development and protection of the marine environment, was sponsored by UNEP under its Regional Seas Programme. It lists the sources of pollution that require control, identifies environment issues that require co-operative efforts and areas of scientific and technical co-operation.

8. CONCLUSIONS

a) Despite limitations in available data there was sufficent information to indicate that most of the stocks of coral reef species were being fully exploited or at the point of being overfished. There was need for stock assessment for most species. The Lesser Antillean states have initiated fisheries data collection systems with this objective in mind.

b) There was a growing fishery for large coastal pelagics which formed the major part of the fish landings of the Lesser Antillean countries. There was an urgent need for a regional approach to the assessment and management of this fishery to prevent overcapitalisation.

c) All the countries of the region have adequate fisheries legislation to support fisheries management.

d) Due to the lack of human and financial resources to adequately manage the fishery resources, there was very little effective management and enforcement of management regulations in the region.

e) Regional approaches to fisheries management should be the preferred option for the region and should be encouraged. Although the OECS/NRMU was persuing a regional approach to fisheries management there was some reluctance to the implementation of the common fisheries zone agreement in the OECS countries.

TABLE 1: BACKGROUND DATA ON THE FISHERIES OF THE LESSER ANTILLES

	STATUS[1]	LAND AREA km²	POPULATION	LANDINGS				DEMAND	NUMBER OF FISHERS[5]	NUMBER OF BOATS[6]		
				1985[2] mt	1985[3] mt	1990[4] mt	1991[4] mt	Estimated 1990 mt		5-10 M	11-17 M	20-30 M
Anguilla	UK	91	8,000	0	485	0	0	1,400 (incl. St. Martin & St. Barthelemy)	350	129	-	
Antigua/Barbuda	I	442	77,226	2,246 R	1,500	2,200 F	2,300 F	2,000	800	250	80	
Barbados	I	431	254,000	5,915	5,100	2,967	2,697	4,300	1,500	500	80	7
Dominica	I	750	80,300	446	950	600 F	590 F	2,000	1,700	630	11	
Grenada	I	344	100,000	1,584	1,100	1,784	1,990	5,600 (incl. St. Vincent & the Grenadines)	1,255	580	12	
Guadeloupe (incl. Marie Galante, Ile des Saintes)	F	1,779	344,000	8,590 F	8,400	8,642	8,444	9,100	1,596	1,000	50	
Martinique	F	1,101	350,000	4,604 F	4,600	5,385 F	5,507 F	9,100	855	1,140	26	
Montserrat	UK	102	13,000	111 R	100	115 F	120 F	500	200	70	5	
Netherland Antilles (Aruba, Bonaire, Curaçao & St. Martin)	N	1,204	260,000	1,050		1,200 F	1,100 F					
St. Christopher & Nevis	I	262	44,700	1,500	1,500	1,720 F	1,750 F	1,000	850	515	2	
Saint Lucia	I	616	140,000	1,052	1,200	903	910 F	5,100	2,000	650	1	
St. Vincent & the Grenadines	I	388	110,000	547 R	1,700	8,370	7,665	5,600 (incl. Grenada)	2,050	740	1	
Virgin Islands (UK) (Tortola, Anegada, Virgin Gorda)	UK	155	11,000	318 R	760	1,377	1,400	2,000 (incl. US Virgin Islands)	180	120		
Virgin Islands (US) (St. Croix, St. John, St. Thomas)	US	342	120,000	600	519	684	880	2,000 (incl. UK Virgin Islands)	480	325	10	

1. F = French, I = Independent, N = Netherlands, UK = United Kingdom, US = United States.
2. FAO, 1985 Yearbook of Fishery Statistics Vol. 60: F = FAO estimate, O = less than half metric ton, R = repitition of data previously reported by country.
3. Extracted from:
    - WECAFC Fishing Landings, 1985. FAO/WECAFC Working Party on Fisheries Statistics, 1986.
    - Draft Report, Workshop on Data Collection Systems in Eastern Caribbean, OECS Fisheries Unit, 1987.
4. FAO Year book of Fishery Statistics. Vol.72, 1991.
5. Includes part-time fishermen.

5 & 6. Extracted from:
- 5 and 5 above
- Chakalall, B., 1984. Perspectives and Alternatives for Fisheries Development in the Lesser Antilles. Proc. of 37 GCFI.

TABLE 2: CONSERVATION MEASURES

a) Technical Specifications for Fish Traps/Pots

Country	Minimum Mesh Size	Remarks
Barbados	1 1/2 ins (38 mm)	Measured across narrowest part.
Dominica	1 1/2 ins (38 mm)	Measured across narrowest part.
Guadeloupe	45 mm	From 1 Dec. 1987; In waters North of 16 50'N parallel and in waters South of 16 50'N parallel of more than 50 m depth.
	45 mm	From 1 June 1989; In waters more than 50 m in depth North of 16 50' N.
	38 mm	From 1 Dec. 1987; In waters South of 16 50'N parallel and less than 50 m in depth.
	38 mm	From 1 June 1989; In waters South of 16 50'N.
		Note: All measurements are taken as the longest distaca between two parallel sides of a hexagon.
Martinique	30 mm, square mesh (x2) 40 mm, triangular mesh (x3) 17 mm, hexagonal mesh (x6)	Represents measurement of each side of mesh.
Virgin Islands (UK)	1 1/2 ins (38 mm)	Measured midway along the aperture of the mesh.
Virgin Islands (US)	1 1/4 ins (32 mm)	Measured across narrowest part. Must possess a self-destruct panel and/or self-destruct door fastening. Owner identification and marking.

b) Technical Specifications for Nets

Country/Net	Minimum Mesh Size	Remarks
Dominica		
- Cast net	1/4 in (5.4 mm)	All nets measurad diagonally at full stretch
- Beach seine	1/2 in (12 mm)	
- Bottom gill net	3 ins (76 mm)	
- Flying fish net	3/4 in (22 mm)	
- Trammel net	prohibited	
Guadeloupe		
- Fixed nets	20 mm (stretched 40 mm)	Note: All nets measured wet
- Trawl nets	prohibited	
- Trammel nets	centre net 40 mm (stretched 80 mm) outer nets 200 mm (stretched 400 mm)	
- For specific species:	20 mm (stretched 40 mm) sides	
'Colas' - Fr	35 mm (stretched 70 mm) bottom/pouch	
(Ocyrus chrysurus; lane snapper - Eng)	(length 200 m, width 10 m)	
'Coulison' - Fr (Selar crumenophthalmus; big-eyed scad Eng)	20 mm (stretched 40 mm)	
Small fish **	14 mm (stretched 28 mm)	
Martinique		
- Fixed nets	25 mm2	
- Trawl nets	35 mm2	Permitted 3 miles offshore only
- Cast nets	15 mm2	
- Seines	15 mm2	Note: Special nets for certain types of small fish may be permitted
St. Vincent and the Grenadines		
- Seine	1 sq in	
- Ballahoo* net	1/2 sq in	Nnt to be drawn on land
- Tangle net (trammel net)	prohibited	
Virgin Islands (US)	1 1/2 ins	Stretched mesh except for bait fish, may have smaller mesh. Prohibited to take seines up to the shore or ramove from water to withdraw fish.

* Hemiramphus sp. (Halfbeaks)

** Examples include:

- Hemiramphus sp. (Balaou - Fr; Halfbeaks - Eng.); Decapterus punctatus (Quianquia - Fr; Scad - Eng.); Ablennes hians (Orphie - Fr; Needlefish - Eng.)

c) Conservation Measures for Spiny Lobster (Panulirus argus) in the Caribbean

Country	Closed Season	Minimum Length	Minimum Tail Weight	Minimum Total Weight	Other
Bahamas	1 April - 31 July	3 3/8 in^1			A fishing permit is required. Traps should be wooden 3 ft x 2 ft x 2 ft, with slats no less than 1 inch apart. Prohibited to: - possess `berried' or egg-bearing females; - remove eggs from `berried' females; - harvest lobsters with tail length less than 6 in.
Belize	15 March - 14 July inclusive	3 in^1	4 ozs		No person shall take in the waters of Belize, or have in his possession, lobsters that: - have eggs or spawn; - have had the eggs or spawn removed; - have a soft shell.
Cuba	1 March - 31 May 15 Feb - 31 May (in Bahia de Carahatas only) 1 Feb - 31 May (in Cayo de Espartillo Nursery Zone only) (Res. No. MIP 647/87) Fishing is prohibited in nursery areas (Res. No. MIP 647/87)	15 cm^2 (Res.No. MIP 135/85)			Prohibited to catch: - berried or spawning females; - lobsters other than by hand/traps/nets (Decreto No. 103/82)
Jamaica	1 April - 31 July				
Guadeloupe		210 mm^4			(Ref: Arrête du 16/07/1987 portant réglementation de la pêche en Guadeloupe)
Martinique		200 mm^3			(Ref: Decret du 05/12/1927 portant réglementation de la pêche en Martinique)
OECS Countries^5	Minister has power to declare notice in Gazette (1 April - 31 October in some islands)	250 mm^2 or 95 mm^1	200 g	680 g	Prohibited to: - harm, catch, possess, sell and purchase undersize, moulting or berried lobsters; - capture lobsters other than by hand/loop/pot/trap; - remove eggs from lobster; - land lobsters from a fishing vessel that are not whole.
Virgin Islands (UK)		3.5 in^1		1 lb	Prohibited to: - harm, catch, possess, sell and purchase undersize or egg-bearing lobsters; - capture lobsters other than by hand/snare/tangle net/pot. (Virgin Islands Fisheries Rules No. 31, 1982)
Virgin Islands (US)		3.5 in^1 (88.9 mm)			Prohibited to: - retain egg-bearing lobsters except in pots or traps until eggs are shed; - strip egg-bearing lobsters of eggs; - land and transport lobsters that are not whole; - use spears/hooks/drugs/poisons or other chemicals for catching lobsters; - import lobsters of less than 3.5 in carapace length or 6 oz. total weight. Requirements: - reporting of catch and effort information; - self-destruct panel or door fastenings on traps or pots and owner identification marking of same (CFMC, Environmental Impact Statement/Fishery Management Plan and Regulatory Impact Review for the spiny lobster fishery of Puerto Rico and US Virgin Islands, 1981)

Notes:

(1) Carapace length.
(2) Length from behind rostral horns to edge of telson.
(3) Length from eyes to beginning of tail.
(4) Length tip of supraorbital spine to end of tail.
(5) Antigua/Barbuda, Dominica, Grenada, Montserrat, St. Christopher/Nevis, Saint Lucia, St. Vincent and the Grenadines.

d) Conservation Measures for Conch (Strombus gigas)

Country	Closed Season	Minimum Weight	Minimum Size	Other
Guadeloupe		250 g cleaned fish		Shell with flared lip. Note: Restrictions only apply to marine reserve. (Arrête du 16 juillet 1987).
OECS Countries***	Minister to declare by notice in Gazette.	225 g (8 ozs)	18 cm in length	Prohibited to take conch which do not have a flared lip. (OECS Harmonised Fisheries Act).
Virgin Islands (US)				5-year moratorium imposed in January 1988, in St. Thomas and St. Croix in process of establishing separate regulations. (Personal communication, Tobias, Dept. of Fish and Wildlife).

e) Conservation Measures for Turtles*

Country	Closed Season	Minimum Size	Other
Barbados		30 lbs	No taking of turtles or eggs within 10 yds. of the shore. (Fisheries Legislation Act. Cap. 131 S.2(1)).
Guadeloupe	15 May - 15 September for Green and Hawksbill. Ban on fishing for Loggerhead and Leatherback.	Carapace length 80 cm	Taking of turtle eggs prohibited. (Arrête du 16/7/1987 portant réglementation de l'exercice de la pêche en Guadeloupe).
Martinique			Taking of turtle eggs prohibited. (Decret du 5/12/1927 portant réglementation de l'exercice de la pêche en Martinique).
OECS Countries***	1 March - 31 July**	Leatherback 350 lbs** Green 180 lbs Hawksbill 85 lbs Loggerhead 160 lbs	5-year moratorium on fishing of all species approved by OECS countries. General protection: no taking or sale of turtles or eggs or interfering with nests. (OECS Harmonised Fisheries Act).
Virgin Islands (US)			General protection: no taking or sale of turtles or eggs or interfering with nests. (Virgin Islands Code, Title 12 Vol. 2B, Conservation S.318, 1982). Federally listed endangered species.

* Chelonia mydas - green
Eretmochelys imbricata - hawksbill
Ceretta caretta - loggerhead
Dermochelys coriacea - leatherback

** Specified in some islands only; in others Minister to declare by notice in Gazette.

*** Antigua/Barbuda, Dominics, Grenada, Montserrat, St. Christopher/Nevis, Saint Lucie, St. Vincent and the Grenadines.

f) Conservation Measures for Sea Urchins (Sea Eggs) (Tripneustes esculentus)

Only Barbados has regulations controlling the fishing of sea urchins (except black sea urchins).

Country	Closed Season	Other
Barbados	1 April to 31 August. A two-year ban on fishing was instituted in August 1987 as an extension of the closed season until 31 August 1989.	No wilful or wanton destruction or injuring of sea eggs lying in any bay or shallow water. (Fisheries Regulations Act. Cap. 131 S.10(1)).

TABLE 3: EXISTING MARINE PARKS IN THE LESSER ANTILLES

Name/Year	Area (ha)	Status*	Noteworthy Marine Fauna	Administration
Antigua and Barbuda				
- Diamond Reef (Antigua), 1973	2000	L	Typical Caribbean coral reef fauna	Fisheries Department, Ministry of Agriculture, Lands and Fisheries
- Palaster Reef (Barbuda), 1973	500	L	Typical Caribbean coral reef fauna	
Barbados				
- Barbados Marine Reserve, 1980	250	P	Varied population of sponges, anemones, polychaetes, sea urchins and sea cucumbers. 35 species of coral, 400 species of reef fish, 3 species of marine turtles.	Parks and Beaches Commission, Ministry of Housing, Lands and the Environment.
Guadeloupe (France)		P	Marine area includes coral reef formations, sea grass beds and mangrove swamp. Includes a nesting site for turtles.	Mission pour la création du Parc National de la Guadeloupe.
- Parc National de la Guadeloupe, 1982; includes Marine Parks Ilet Fajou Grand Cul-de-Sac Marin	21,500 (4,850 ha)			
Martinique (France)	517	P	Beaches, reefs, sea grass beds, mangrove and coastal vegetation.	Parc Naturel Régional de la Guadeloupe.
- Réserve Naturelle de la Caravelle, 1976				
Netherland Antilles				
- Bonaire Marine Park, 1979	2600	P	Extremely rich Caribbean coral reef fauna	Netherland Antilles National Parks Foundation (STINAPPA)
- Curaçao Underwater Park, 1983	600	P	Typical Caribbean coral reef fauna	STINAPPA
- Washington-Slabbai Natural Park, Curaçao, 1969 (enlarged in 1977 by 400 ha)	5900	P	Caribbean coral reef fauna	STINAPPA
Saint Lucia	45	P	Caribbean coral reef fauna	Saint Lucia National Trust
- Maria Islands Nature Reserve, 1982				
St. Vincent and the Grenadines**				
- Tobago Keys Marine Reserve	NI	L	NI	NI
- Young Island and Callagua Reefs Marine Reserve	NI	L	NI	NI
- Petit Canouan Island Marine Reserve	NI	L	NI	NI
- Milligan Bay Marine Reserve	NI	L	NI	NI
Virgin Islands (UK)				
- Wreck of the Rhone, 1980 (incl. 14 ha land)	323	P	Typical Caribbean coral reef species	BVI National Parks Trust
Virgin Islands (US)				
- Virgin Islands Natural Park (St. John), 1956	6073	F	More than 50% Highland with some marine area	US National Park Service
- Buck Island Reef (St. Croix), 1961	356	P	Marine Caribbean coral reef fauna	

Notes:
NI - No information
* L - Legally existing no government protection or management plans
P - Partially protected by government
F - Fully protected by government

Sources:
- IUCN, 1982, IUCN Directory of Neotropical Areas
- Wood, J. (ed.), 1984. Proceedings of the Workshop on Biosphere Reserves and Other Protected Areas for Sustainable Development of Small Caribbean Islands. US Dept. of Interior, National Park Service.

** Extracted from the Organization of American States Preliminary List of Existing Caribbean Marine Park-like Protected Areas, OAS, 1987.

TABLE 4: NATIONAL LIMITS RELATING TO TERRITORIAL SEAS, EXCLUSIVE FISHING ZONES AND EEZs

Country	Territorial Sea	Fishing Zone	EEZ
Antigua and Barbuda*	12 mi (1982)	200 mi (1982)	200 mi (1982
Barbados*	12 mi (1977)		200 mi (1978)
British Virgin Islands (UK)	3 mi (1978)	200 mi (1977)	
Dominica*	12 mi (1981)	200 mi (1981)	200 mi (1981)
Martinique and Guadeloupe (France)	12 mi (1971)	200 mi	200 mi (1977)
Grenada*	12 mi (1978)		200 mi (1978)
Montserrat	3 mi (1978)	200 mi (1983)	
Netherland Antilles	12 mi (1986)	200 mi (1991?)	
St. Christopher/Nevis*	12 mi (1984)		200 mi (1984)
Saint Lucia**	12 mi (1984)		200 mi (1984)
St. Vincent and the Grenadines*	12 mi (1983)		200 mi (1983)
US Virgin Islands	3 mi	200 mi (1977)	200 mi (1983)

* Country is a signatory to a UN Law of the Sea Convention.
** Country has ratified UN Law of the Sea Convention.

TABLE 5: STATUS OF THE CONVENTION FOR THE PROTECTION AND DEVELOPMENT OF THE MARINE ENVIRONEMNT OF THE WIDER CARIBBEAN REGION AND THE PROTOCOL CONCERNING CO-OPERATION IN COMBATTING OIL SPILLS IN THE WIDER CARIBBEAN REGION (AS AT 15 JANUARY 1987)

State	Convention		Protocol	
	Signed	Ratified	Signed	Ratified or acceded (1)
Antigua and Barbuda	-	-	-	-
Bahamas	-	-	-	-
Barbados	5 March 84	28 May 85	5 March 84	28 May 85
Belize	-	-	-	-
Colombia	24 March 83	-	24 March 83	-
Costa Rica	-	-	-	-
Cuba	-	-	-	-
Dominica	-	-	-	-
Dominican Republic	-	-	-	-
European Economic Community	24 March 83	-	-	-
France (Martinique and Guadeloupe)	24 March 83(2)	13 November 85	24 March 83	13 November 85
Grenada	24 March 83	30 May 85	24 March 83	-
Guatemala	5 July 83	-	5 July 83	-
Guyana	-	-	-	-
Haiti	-	-	-	-
Honduras	24 March 83	-	24 March 83	-
Jamaica	24 March 83	-	24 March 83	-

State	Convention		Protocol	
	Signed	Ratified	Signed	Ratified or acceded (1)
Mexico	24 March 83	9 April 85	24 March 83	9 April 85
Netherlands (Netherland Antilles)	24 March 83	16 April 84	24 March 83	16 April 84
Nicaragua	24 March 83	-	24 March 83	-
Panama	24 March 83	-	24 March 83	-
St. Christopher and Nevis	-	-	-	-
Saint Lucia	24 March 83	30 November 84	24 March 83	-
Saint Vincent and the Grenadines	-	-	-	-
Suriname	-	-	-	-
Trinidad and Tobago	-	24 January 86	-	24 January 86
United Kingdom (Virgin Islands, Montserrat)	24 March 83	28 February 86	24 March 83	28 February 86
United States of America (Virgin Islands)	24 March 83	31 October 84	24 March 83	31 October 84
Venezuela	24 March 83	-	24 March 83	-

(1) Date when instruments of ratification or accession deposited with Government of Colombia.

(2) Signed with reserve.

Source: UNEP Regional Seas Programme, UNEP/IG.67/3.

LITERATURE CITED and BIBLIOGRAPHY

Arrête du 16 Juillet 1987 portant reglementation de l'exercice de la pêche en Guadeloupe. 1987. Préfecture de la Région Guadeloupe, Secrètariat Général pour les Affaires Economiques, Service des Actions Economiques. No. 87-1 SAEC.

British Virgin Islands National Parks Trust. 1986. A Parks and Protected Areas System Plan.

Berkes, F. and Shaw, A.W. 1986. Ecologically Sustainable Development: A Caribbean Fisheries Case Study. Canadian Journal of Development Studies, 7; 225-235

Berg, C.J. 1983. Genetic Studies on Conch Populations in the Lesser Antilles. Progress Report to World Wildlife Fund-US.

Caribbean Fishery Management Council, Fishery Management Plan. 1985. Final Environmental Impact Statement and Draft Regulatory Impact Review for the Shallow-water Reef-fish Fishery of Puerto Rico and the US Virgin Islands.

------------. 1983. Fishery Management Plan for the Fishery Resources of the Puerto Rican and Virgin Islands Geological Platforms.

------------. 1983. Draft Fishery Management Plan, Draft Environmental Impact Statement, Regulatory Analysis for the Coastal Migratory Pelagic Resources.

------------. 1983. Preliminary Fisheries Management Plan for Atlantic Billfishes and Sharks.

------------.1981. Environmental Impact Statement/Fishery Management Plan and Regulatory Impact Review for the Spiny Lobster Fishery of Puerto Rico and the US Virgin Islands.

Caribbean Conservation Association. 1982. Listing of Environmental Laws of the Commonwealth Caribbean. CCA, Barbados.

Chakalall, B. 1985. Natural Resource Management Problems and Needs in the Lesser Antilles. Proc. of Caribbean Seminar on Environmental Impact Assessment, CCA/UWI.

------------. 1984. Perspectives and Alternatives for Fisheries Development in the Lesser Antilles. 37th GCFI Meeting.

------------. 1982. The Fishing Industry of St. Vincent and the Grenadines. Report to IICA.

------------. 1982. The Fishing Industry of Barbados. Report to IICA

Decret du 9 janvier 1852 (modifié par loi no. 86-2 du 3 janvier 1986) sur l'exercice de la pêche maritime. 1852. Note de base applicable en Martinique et Guadeloupe. Ministère de la Marine et des Colonies.

Decrêt du 5 décembre 1927 portant réglementation de l'exercice de la pêche en Martinique, No. 29. 1927.

Dalhousie Ocean Studies Programme. 1982. The Integration of Marine Space in National Development Strategies of Small Island States: The Case of the Caribbean States of Grenada and Saint Lucia. DOSP, Halifax, Canada.

Edeson, R., Pulvenis, J.F. 1983. Lecture Notes on Coastal and Estuarine Studies. Springer-Verlag, Berlin.

Finlay, J. 1985. Fishing by Motored Boats in Grenada: A Case Study of a Small Island Commerical Fisheries.

EEC. 1972. Council Regulation No. 101/76 of 19 January 1972. Laying down acommon structural policy for the Fishing Industry.

Fisheries Act of Antigua and Barbuda. 1983.

Fisheries Act of Grenada. 1987.

Fisheries Act of Saint Lucia. 1984.

Fisheries Act of St. Vincent and the Grenadines. 1986.

Fisheries Industry Act of Barbados, Chap. 262. 1967.

Fisheries Legislation of Grenada - Statutory Rules and Orders No. 9 of 1987.1987.

Fisheries Ordinance of the British Virgin Islands (UK) No. 18 of 1979. 1979.

Fisheries Ordinance of Montserrat No. 18 of 1982. 1982.

Fisheries Regulation of Barbados, Chap. 391. 1985.

Fisheries Regulations of the Commonwealth of Dominica. 1987.

Fishery Regulations of St. Vincent and the Grenadines Statutory Rules andOrders, No.1 of 1987. 1987.

Fisheries Rules of the British Virgin Islands (UK), Statutory Rules and Orders No. 31 of 1982. 1982.

The Europa Year Book ,Vol. 1 & 2. 1984.

Food and Agriculture Organisation. 1983. Approaches to the Regulation of Fishing Effort, FAO Technical Paper, No. 243.

-----------. 1984. Report of the FAO World Conference on Fisheries Management and Development, Rome, 27 June-6 July 1984.

1986. FAO/WECAFC/CARICOM, Workshop on Fisheries Regulation in CARICOM Countries, Draft Report.

-----------. 1986. Workshop on Fisheries Legislation in CARICOM Member States Doc. Ref. WP/10, May 1986. Harmonised Fisheries Laws and Regulations Recommended for OECS Countries.

Gajraj, A.M. 1978. Background Information on the Wider Caribbean Area. CEP/Info.1. Joint UNEP/ECLA Caribbean Environment Project.

Goodwin, M.H. & Taylor, S.E. 1980. Survey of Current Status of Marine Resource Management in some Eastern Caribbean Islands: Antigua, Barbados, Dominica, Grenada, Montserrat, St. Kitts/Nevis and St. Lucia. CCA Technical Report No. 2, Barbados.

Hardin, G. 1968. The Tragedy of the Commons. Science 162; 1243-1248.

International Union for the Conservation of Nature and Natural resources.1982. Directory of Neotropical Areas. Tycooly Pub. Ltd.

Johannes, R.E., 1978. Traditional Marine Conservation Methods in Oceania and their Demise. Ann. Rev. Ecol. Syst. 9, 349-364.

Mahon, R. (ed.). 1987. Report and Proceedings of the Expert Consultation on Shared Resources of the Lesser Antilles, Sept. 1986. FAO Fisheries Report No. 383.

OECS/ICOD. 1987. Draft Report on Data Collection in Eastern Caribbean Islands, Draft Report. June,1987.

Organisation Of American States. 1987. List of Existing Caribbean Marine Park-like Protected Areas.

Putney, A.D. 1982. Survey of Conservation Priorities in the Lesser Antilles. CCA Technical Report No. 1.

------------. 1978. A Strategy for Marine Conservation in the Wider Caribbean. Report to IUCN, Project 1462.

Shima, K. 1983. The Role of Co-operatives in the Exploration and Management of Coastal Resources in Japan; FAO Fisheries Report No.295, 343-247

United Nations Environment Programme. 1984. The State of Marine Pollution in the Wider Caribbean, UNEP Regional Seas Reports and Studies No. 36.

------------. 1983. Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region.

------------. 1983. Protocol concerning Co-operation in Combatting Oil Spills in the Wider Caribbean Region.

------------. 1983. Action Plan for the Caribbean Environment Programme, UNEP Regional Seas Reports and Studies No. 26.

United Nations Convention on the Law of the Sea. 1982. Third UN Conference on the Law of the Sea.

The Virgin Islands Code, Vol. 2B 1982 ed., Title 12, Conservation. 1982.

Territorial Waters Act of Barbados. 1977.

Territorial Waters Act of Grenada. 1987.

WECAFC. 1983. Current Fisheries Situation and Opportunities for Co-operative Action in the Lesser Antilles. DM/LA/83/3.

Wood, Jim (ed.). 1984. Proceedings of the Workshop on Biosphere Reserves and other Protected Areas for Sustainable Development of
Small Caribbean Islands. US Dept. of Interior, National Parks Service.

THE CODE OF CONDUCT FOR RESPONSIBLE FISHERIES: IMPLICATIONS FOR CARIBBEAN STATES

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INTRODUCTION

Fisheries, including aquaculture, provide a vital source of food, employment, recreation, trade and economic well-being for people throughout the world, both for present and future generations and should therefore be conducted in a responsible manner. Fisheries usually represent a particularly valuable natural resource which make the need for their conservation of it an even higher priority. The Code sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation and management and development of living aquatic resources, with due respect for the ecosystem and biodiversity. It also recognizes the nutritional, economic, social, environmental and cultural importance of fisheries, as well as the interests of those concerned with the fishery sector, the resource users from fishers throughout the chain to the consumers.

Having listed all these important and comprehensive aspects, the introductory paragraph of the Code encourages States and all those involved in fisheries to apply the Code and to give effect to it.

DESCRIPTION OF THE CODE

The Code consists of five introductory articles:

1. Nature and scope of the Code
2. Objectives of the Code
3. Relationship with other international instruments
4. Implementation, monitoring and updating
5. Special requirements of developing countries

These introductory articles are followed by an article on General Principles and the Articles 7 to 12 covering the themes of:

- Fisheries Management
- Fishing Operations
- Aquaculture Development
- Integration of Fisheries into Coastal Area Management
- Post-harvest Practices and Trade
- Fisheries Research

The FAO membership adopted the Code on 31 October 1995 and although it is voluntary, we expect its provisions to be increasingly applied to world fisheries. The formulation of the Code make extensive use of legal terminology and ways of expression. This may be difficult to understand for those who do not have experience in legal matters. Therefore, FAO has started to elaborate Technical Guidelines related to the various chapters which should help users in the appropriate application of the Code.

PROVISIONS OF SPECIFIC INTEREST TO SIDS

Article 5: Special Requirements of Developing Countries

Article 5 which deals with the requirements of developing countries contains a specific reference to small island developing countries and exhorts countries, relevant international organizations and financial institutions to fully recognize the special circumstances and requirements of developing countries which are aiming to implement of the Code of Conduct. The specific requirements mentioned are in the areas of financial and technical assistance, technology transfer, training and scientific cooperation. In order to mobilize international technical cooperation in support of developing countries, FAO has prepared and submitted to donors an Interregional Programme of Assistance to Developing Countries for the Implementation of the Code of Conduct for Responsible Fisheries. This programme covers 10 specific areas of assistance (Annexes or sub-programmes) considered to be of crucial importance to developing countries:

a. Implementation of the Compliance Agreement
b. Upgrading of capabilities for reporting on fisheries statistics
c. Upgrading capabilities in monitoring, control and surveillance
d. Promotion of responsible fishing operations
e. Upgrading marine resource survey capabilities
f. Improving the provision of scientific advice for fisheries management
g. Fisheries policy, planning and management
h. Developing and implementing fishing fleet restructuring policies
i. Implementation of responsible post-harvest practices and trade
j. Umbrella support to non-governmental organizations

The total indicative budget for all sub-programmes amounts to US$ 8.7 million; however, it is too early to speculate on the reaction of donors and the likely availability of funds for project implementation in the coming years.

It may be a bit ambiguous to attempt a ranking of the General Principles and the thematic chapters of the Code of Conduct according to their importance for the fisheries of small island developing states, because concrete fishery situations are likely to differ from country to country. The general characteristics of island states, e.g., small-scale structure of the sector, importance of tourism, use of coastal areas, often restricted marketing systems and sometimes need to import fishery products, suggest that resource management, coastal area management and post-harvest practices are probable areas of particular emphasis for island countries; although fishing operations, aquaculture and fishery research are also relevant in some cases.

Article 7: Fisheries Management

Apart from 10 general provisions, this article covers management objectives highlighting the long-term sustainable use of fishery resources as the overriding criterion of conservation and management and lists several measures as examples of appropriate management, such as avoidance of excess fishing capacity, the need to take into account the interest of fishers, including those engaged in subsistence and small-scale fisheries; conservation of aquatic habitats and ecosystems and protection of endangered species; correction of adverse environmental impacts.

The framework and procedures for effective fisheries management are addressed as is data gathering and management advice. A separate chapter is devoted to the precautionary approach which should be applied widely to conservation, management and exploitation of living aquatic resources and the Code stresses that the absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures. It is essential that, on the basis of the best scientific evidence available, reference points be established indicating stock specific targets and limits. Specific management measures are the subject of another chapter as are the legal arrangements required for effective implementation of fisheries management.

In the discussions on the management article of the Code, a rather intensive exchange of views regarding the relationship between management and international trade had prevailed; however, as a consensus could not be achieved, a section proposed by the delegation of Japan on the subject was not included. Many fishery products are traded in the international market place and it can be argued that the demand pull originating from these markets affects resource exploitation and, therefore, constitutes an important variable for resource management. On the whole for fisheries, demand can be seen as influencing future supplies resulting from adjustments caused by management regimes. To a certain extent, present effective demand will determine future potential supply and to this extent cause a supply/demand gap or contribute to an equilibrium. If this line of responsibility holds, it would be justifiable to involve those responsible for the (business) administration of the demand, in the administration of the management regimes as well. Or would this be asking the goat to become the gardener?

Article 10: Integration of Fisheries into Coastal Area Management

This is a relatively short article dealing with the institutional framework, policy measures, regional cooperation and implementation of integration at national level. The latter suggests that mechanisms be established for cooperation and coordination among national authorities involved in planning, development, conservation and management of coastal areas, and stresses the need to ensure that the authorities representing fisheries in the coastal management process have the appropriate technical capacities and financial resources.

Article 11: Post-harvest Practices and Trade

Responsible fish utilization is one of the main chapters of this article, claiming the consumers' right to safe, wholesome and unadulterated fish and fishery products. It refers to the work of the FAO/WHO Codex Alimentarius Commission and calls on States to promote the implementation of quality standards agreed therein. Those involved in the processing and marketing of fish and fishery products are encouraged to reduce post-harvest losses and waste, to improve the use of by-catch to the extent that this is consistent with responsible fisheries management practices and to use resources such as water and energy, in particular wood, in an environmentally sound manner. The manufacture of value-added fishery products by developing countries is advocated and States are requested to ensure that domestic and international trade in fishery products accord with sound conservation and management practices. This latter remark points towards the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). The Convention can limit, regulate and prohibit trade in these species and products therefrom if they are listed in one of the Annexes.

The debate of the FAO membership related to the remaining two chapters of Article 11 (Responsible International Trade, and Laws and Regulations relating to Fish Trade) and was strongly influenced by the intention not to create clauses which would contrast with provisions issued under the Agreements leading to the Establishment of the World Trade Organization and to make it clear that the formulation of trade rules is the prerogative of the WTO and not of FAO. The Appendix to this paper contains a brief presentation of the WTO which will be useful in appreciating the specific functions of WTO and FAO in respect of international fish trade. The Code also states that policies and practices related to the promotion of international fish trade and export production should not result in environmental degradation or adversely impact the nutritional rights and needs of people for whom fish is critical to their health and well-being and for whom other comparable sources of food are not readily available or affordable.

According to the Code, laws, regulations and administrative procedures applicable to international fish trade should be transparent, as simple as possible, comprehensible and, when appropriate, based on scientific evidence. They should be reviewed periodically and simplified without jeopardizing their effectiveness. In cases where regulations are changed, sufficient time should be allowed for preparing the implementation of the Code and consultation with affected countries would be desirable. In this connection the Code stipulates that due consideration be given to requests from developing countries for temporary derogations from obligations.

CONCLUDING REMARKS

The Code of Conduct for Responsible Fisheries has been prepared and adopted in a time frame which was remarkably short for international undertakings and the thrust provided in this context by the International Conference on Responsible Fishing in Cancún (1992) and UNCED in Rio de Janeiro in the same year were probably a very supportive factor. However, the Code is not considered a final product but will continue to evolve and be updated as the global fishery situation may demand in the future. For small island developing states it will continue to be an important instrument safeguarding their position in the international arena.

Appendix

A Brief Presentation of the World Trade Organization

1. *The legal and economic approaches of the WTO*

Economic analysis which focuses on the gains for the country itself (what should count is country A's own interest, not the consequences on its partners of the various policies country A may follow) suggests that, under conditions which are likely to be the most frequent, a country should not hesitate to adopt unilaterally a free trade policy. By doing so, the country will improve its welfare with respect to the situation with no international trade (autarky) or less trade.

The tremendous success of WTO has been due to the fact that it has been able to combine both the legal and economic aspects in a mutually acceptable way. As underlined in the comments about section 11.2.1, the basic WTO principles do not impose any constraint on the level of protection: they do not impose a free trade view. The founding fathers of the GATT-WTO were intimately convinced about the value of free trade, but they were also politicians good enough to know the power of politics of protection at home.

Without the capacity to impose free trade to countries unwilling to follow this policy by their own will, the WTO has been able to succeed only because it has been able to improve transparency[1]. Countries have progressively realized the costs of their own protectionist policies for their own consumers - individual consumers or industrial users. By doing so since 1947, the WTO liberal approach has favoured a steady movement towards freer trade on a multilateral basis. Tariffs on industrial goods have been reduced from 45 to 4 percent by OECD countries which have participated to the GATT-WTO process since the start. In a nutshell, the WTO is not done for "virtuous" (or lucky) governments which can follow a freer trade policy without strong opposition from domestic vested interests. Rather, the WTO is an institution which is useful for "normal" governments struggling with strong vested lobbies on the road to freer trade and which need help from their fellow governments facing the same ordeal.

The key GATT-WTO instrument for launching and sustaining this trend of "joint liberalization" has been Rounds of trade negotiations, where each government trades concessions in its import regime for foreign concessions in the foreign import regimes. The Uruguay Round, terminated in Marrakesh in 1994, has been the 8th Round, and it is the last GATT Round. The next Round, which could be (though that seems highly unlikely) launched at the next WTO Ministerial Conference, to be held in Singapore in December 1996, will be the first WTO Round.

As it can already be seen, the WTO framework consists in three components. First, it is a set of agreements dealing with a large range of topics, from agriculture to industry and services, from intellectual property rights to trade related investment measures, as well as dealing with special fields of concerns, such as anti-dumping, subsidies or safeguards. Second, it is a series of Round negotiations, leading over time to freer trade in a wider number of activities. Lastly, the WTO is an organization, with a permanent staff of around 600-700 persons, and several bodies, such as the Appellate Body.

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[1] The WTO is a more "democratic" body than the UN, in the sense that there are no "major" powers enjoying special rights in a Security Council.

This brief presentation of the WTO has implications for the fish sector. The most important lesson flowing from the WTO texts has already been underlined: the focus on non-discrimination is essential for political as well as economic reasons. The second lesson comes from the Round technique: it is much easier to get compromises when there is a large choice of possible trade-offs. In other words, there is an incentive to integrate, more completely than before, fish and fishery products in the general bargain of future WTO Rounds.

2. *Instruments of protection: tariffs versus other instruments*

Independently from the appropriate level of protection, the WTO has precise provisions about the instruments to be used for protecting domestic markets: the WTO explicitly bans quotas and non-tariff barriers (NTBs), and it imposes a protection based on tariffs.

There are two ways to look at this WTO choice among instruments of protection. The first is to say that banned instruments are harmful for the world trade because of the lack of transparency they tend to generate. For instance, quotas are not generally available in the tariff schedule: they are published in separate publications, hard to find or available only on short notice (in newspapers). More importantly, quotas give fewer clues to foreign producers whether they could be successful exporters to the quota-imposing country than tariffs. In case of tariffs, foreign producers can roughly estimate the prices they could charge in the foreign markets (since they know their production costs and the tariffs to be applied) and they can compare these prices to the domestic prices in the importing country in order to know whether they will be successful or not. In case of quotas, other considerations have to be taken into account: what are the paper work to be done, what are the ultimate consequences of the quota system on the way to do business (are quotas non-exchangeable or not, do they impose the obligation to keep increased stocks in the importing country or not, do they require to have local correspondents or not, what happens if the demand of the import-competing country declines, etc.)? All these considerations generate costs which, by definition, are very difficult to be assessed in a predictable way by foreign firms, putting these firms under heavy stress.

The second, and indeed more useful, way to look at quotas is from the importing country perspective. By imposing a quota, the importing country imposes a protection without getting the revenue it could get if it would have used a tariff as an instrument of protection. Instead of tariff revenues, they are rents flowing from the fact that quotas create a price wedge between the lowest (world) prices and highest (domestic) prices in the country importing the goods under quantitative restrictions. Operators involved in the day-by-day quota enforcement procedures are the ones who are likely to get most of the rents generated. The existence of these rents creates endless problems. If those who get the rents are nationals of the importing country, these problems flow from the mere fact that quota permits become valuable, hence a source of collusion and/or corruption between operators and public authorities. But those who get the rents can also be foreign operators. Indeed, that is often the case when quotas take the form of NTBs called "voluntary export restraints" (VERs) which are agreed between the exporting and importing countries. In this last case, quota rents constitute a financial drain from the importing country to the exporting countries implementing VERs.

These basic points help to understand the reasons for which the GATT-WTO has banned quotas. More reasons could be mentioned. First, tariffs have the feature to keep some relations between domestic and world prices. For instance, if world prices decline, tariff will transmit this decline, allowing protected producers to realize that foreign producers are more efficient. That is not true in the case of quotas: domestic prices will stay constant, despite the increased efficiency of foreign firms - meaning that domestic firms will become less and less efficient (with respect to foreign firms). Second, declining demands - a context which may be important in the case of fish - could make quotas more harmful to domestic firms than tariffs.

Despite the GATT-WTO legal ban on quotas (and the economic good sense behind these rules), importing countries have continued to impose them under the form of VERs. As said above, VERs are fundamentally equivalent to quotas - if one leaves aside who implements the restrictions and who gets the rents. Why have importing countries shifted to VERs? Part of the answer is the WTO ban: as nobody complains against a VER (the importing country because of the protection, the exporting country because of the rents), the GATT-WTO process of dispute settlement cannot work. But, the biggest part of the answer is the fact that VERs are even less transparent than quotas (because they are created by obscure agreements, implemented in a non-transparent way). Moreover, they leave the impression that the foreign country has bowed to pressures of the importing country (indeed, rents associated to VERs can be seen as a "price" paid by the importing country to the exporting country). As said in the above notes, the Uruguay Round has launched a major effort to remove all the non-tariff barriers. As of today, it is too early to assess how successful this effort has been.

3. The 1994 SPS and TBT Agreements

The 1994 SPS (Sanitary and Phytosanitary Measures) Agreement is the first of its type. GATT Article XX mentions that trade flows could remain subject to health and safety measures the country feels necessary to take. The obvious problem is that such measures can be disguised protectionist measures which can nullify or impair concessions granted by the concerned country. A way to avoid this problem is to create international standards. Leaving aside the difficulty of such a task, it remains quite possible that a country may feel necessary to impose stricter standards than international norms (I use standards and norms as synonymous in this paragraph). The SPS agreement addresses this last case, by providing a few guidelines for health related measures, the main guideline being that stricter rules should be based on "scientifically based evidence." But, the SPS does not deal with measures based on other considerations, such as consumer interests, animal welfare or environmental issues.

The 1994 TBT (Technical Barriers to Trade) Agreement is the second of its type (a first agreement was available after the Tokyo Round). This agreement applies to all products, hence it includes fish and fishery products (but the agreement does not apply to the specific issues raised by government procurement and SPS). Technical barriers to trade can be related to mandatory technical regulations, defined as *a document which lays down product characteristics or their related processes and production methods, including applicable administrative provisions, with which compliance is mandatory*. They can also be related to terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method. Moreover, the TBT agreement covers non-mandatory technical regulations, i.e., standards approved by a "recognized" body. Enforcement problems are likely to be concentrated in mandatory technical regulations since they are the only ones (because of their mandatory component) to permit to exclude a foreign product from the market involved (non-compliance to non-mandatory standards may be costly, but it is not necessarily so, and/or not necessarily in a substantial way). TBT problems often rise in the implementation procedures, and particularly, in the "conformity assessment" procedures. The TBT agreement aims at solving all these issues by three types of provisions. First, it lays down detailed rules and procedures as to the adoption and application of technical regulations. When doing so, it insists on the fact that foreign goods should be granted a "treatment no less favourable" than that accorded to like products from the importing country (or from any other foreign country). Second, the TBT agreement contains detailed provisions about the "conformity assessment" conditions in order to ensure expeditious and non-discriminatory enforcement. Third, the TBT agreement contains provisions aiming at developing "mutual recognition" of conformity assessment by countries.

This last approach of "mutual recognition agreements" (MRAs) is certainly the most promising solution in the long run, as shown by the European Community experience. In the EC, full harmonization of existing rules and standards has rapidly proven to be impossible, in agriculture as well as in services (indeed, anti-European feelings have been fuelled by the fear of so-called "European" rules on cheese or other foodstuffs). By contrast, a core harmonization, limited to the most essential aspects of the concerned problem, combined with the mutual recognition of the other less crucial provisions, has proved to be the right approach. The TBT agreement has opened this way, but under a weak condition: it promotes MRAs "whenever possible." A new momentum on this aspect could be given only when a few MRAs will have been signed and implemented, showing their benefits to all signatories. It should be examined whether fish and fishery products could not be a good ground for testing the MRA approach.

Annex: The Leutwiller Report
(Executive Summary)

1. In each country, the making of trade policy should be brought into the open. The costs and benefits of trade policy actions, existing and prospective, should be analyzed through a "protection balance sheet". Private and public companies should be required to reveal in their financial statements any subsidies received. Public support for open trade policies should be fostered. (Pages 35-37)

2. Agricultural trade should be based on clearer and fairer rules, with no special treatment for particular countries or commodities. Efficient agricultural producers should be given the maximum opportunity to compete. (Page 37)

3. A timetable and procedures should be established to bring into conformity with GATT rules voluntary export restraints, orderly marketing agreements, discriminatory import restrictions, and other trade policy measures of both developed and developing countries which are inconsistent with the obligations of contracting parties under the GATT. (Page 38)

4. Trade in textiles and clothing should be fully subject to the ordinary rules of the GATT. (Page 39)

5. Rules on subsidies need to be revised, clarified and made more effective. When subsidies are permitted they should be granted only after full and detailed scrutiny. (Pages 39-40)

6. The GATT "codes" governing non-tariff distortions of trade should be improved and vigorously applied to make trade more open and fair. (Pages 40-41)

7. The rules permitting customs unions and free-trade areas have been distorted and abused. To prevent further erosion of the multilateral trading system, they need to be clarified and tightened up. (Page 41)

8. At the international level, trade policy and the functioning of the trading system should be made more open. Countries should be subject to regular oversight or surveillance of their policies and actions, about which the GATT Secretariat should collect and publish information. (Pages 41-42)

9. When emergency "safeguard" protection for particular industries is needed, it should be provided only in accordance with the rules - it should not discriminate between different suppliers, should be time-limited, should be linked to adjustment assistance, and should be subject to continuing surveillance. (Pages 42-44)

10. Developing countries receive special treatment in the GATT rules. But such special treatment is of limited value. Far greater emphasis should be placed on permitting and encouraging developing countries to take advantage of their competitive strengths, and

on integrating them more fully into the trading system, with all the appropriate rights and responsibilities that this entails. (Pages 44-45)

11. Governments should be ready to examine ways and means of expanding trade in services, and to explore whether multilateral rules can appropriately be devised for this sector. (Pages 45-46)

12. In support of improved and strengthened rules, GATT's dispute settlement procedures should be reinforced by building up a permanent roster of non-governmental experts to examine disputes, and by improving the implementation of panel recommendations. Third parties should use their rights to complain when bilateral agreements break the rules. (Pages 46-47)

13. We support the launching of a new round of GATT negotiations, provided they are directed toward the primary goal of strengthening the multilateral trading system and further opening world markets. (Page 47)

14. To ensure continuous high-level attention to problems in international trade policy, and to encourage prompt negotiation of solutions to them, a permanent Ministerial-level body should be established in GATT. (Page 48)

15. The health and even the maintenance of the trading system, and the stability of the financial system, are linked to a satisfactory resolution of the world debt problem, adequate flows of development finance, better international coordination of macroeconomic policies, and greater consistency between trade and financial policies. (Pages 49-50)

CREDIT AND FINANCIAL REQUIREMENTS OF COMMUNITY-BASED FISHERIES MANAGEMENT PROGRAMMES

by

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INTRODUCTION

As in many other parts of the world, community-based fisheries management programmes are presently being introduced in the Caribbean. Compared to top-down fisheries management schemes, community-based fisheries management programmes have a number of advantages.

These advantages include a more realistic identification of management issues and options, the identification of the special concerns of resource users, the facilitation of realistic resource management plans and programmes, the facilitation of monitoring and control of resource management measures, and a better compliance with regulations and restrictions related to resource management.

The successful introduction of community-based fisheries management measures, however, requires a number of supportive measures to ensure that fishers are enabled to actively participate in the design, implementation and monitoring of fisheries management programmes and to comply with new regulations concerning the banning of traditional fishing methods, the closing of traditional fishing grounds, etc.

One of these supportive measures is the introduction of appropriate credit programmes to facilitate investment in the various economic activities related to the introduction of fisheries management regulations.

FISHERIES MANAGEMENT RELATED INVESTMENT NEEDS

In the context of the introduction of community-based fisheries management programmes and measures, the economic activities undertaken by members of fishing communities and entrepreneurs involved in the fisheries sector undergo a number of changes. The more significant changes which are bound to occur are the following ones:

- Diversification of fishing effort from over and heavily exploited species to under-exploited species. In addition to vocational training and the support by fisheries extension services, diversification of fishing effort usually requires investments in new types of fishing gear and modification of existing or acquisition of new types of fishing craft.

- Occupational changes from employment in capture fisheries to employment in brackishwater or other types of coastal aquaculture. In addition to vocational training and the support of fisheries extension services, the development of coastal aquaculture usually requires the construction or acquisition of ponds and related installations (channels, sluice gates, etc.) and the acquisition of various production inputs (fingerlings, feed, fertilisers, nets, etc.) which all require considerable investment.

- Full-time or part-time occupational changes from employment in capture fisheries to employment outside the fisheries sector. In the case of self employment, this usually requires, in addition to vocational and management/enterprise development training, considerable capital as well as working capital investments.

- Introduction of improved fish marketing and processing methods in order to make better use of limited available aquatic resources. The development of fish marketing and processing again requires considerable investment in fish marketing and processing equipment and facilities as well as working capital.

- Introduction of special income generating activities for women to enhance women's socio-economic role and to increase family income. Most activities would be self - employed ones and require working capital as well as capital investments..

Many of above investments are medium-term in nature, and it is very unlikely that they can be made from the fisherfolk's own financial resources because of their weak economic status and related low level of savings.

ACCESS OF FISHERFOLK TO INSTITUTIONAL CREDIT

In most countries, fisherfolk have very limited access to institutional credit. Fisherfolk's credit needs are being met to some extent by the informal sector which largely consists of fish traders cum moneylenders.

Informal credit, however, has a number of limitations and disadvantages. The disadvantages include being linked to unfavourable terms of trade and high interest rates, and the limitations include being short-term and mainly available for traditional investments with proven high short-term returns rather than for innovative investments with medium- and long-term benefits such as the ones related to community-based fisheries management.

A number of factors are responsible for the limited access of fisherfolk to institutional credit. The more important ones are:

- lack of familiarity of banks with the fisheries sector
- lack of positive credit record of the fisheries sector
- poor performance of past fisheries credit programmes
- ack of traditional collateral
- perceived high risk of lending
- relatively high transaction costs of lending institutions.

MEETING CREDIT REQUIREMENTS OF COMMUNITY-BASED FISHERIES MANAGEMENT PROGRAMMES

In order to improve fisherfolk's access to institutional credit for management related investments as described above, technical assistance and training as well as special institutional and financial support needs to be provided to financial institutions by national Governments in order to enable and encourage them to cater to the credit needs of community based fisheries management programmes. The latter type of support includes credit guarantee and insurance schemes, refinance facilities, special interest rates, institutional support, etc. which could possibly be provided in co-operation with foreign donors and development banks and funds.

At the national level, appropriate institutional arrangements and lines of credit for the above investments need to be established and, among other things, the following activities need to be carried out:

- identification of fisheries management related credit needs in close consultation with fisherfolk and their associations
- identification of suitable and interested financial institutions
- design of appropriate lending policies and procedures
- design of credit guarantee schemes, insurance schemes, refinance arrangements , etc.
- design and implementation of savings mobilisation campaigns
- implementation of pilot credit schemes
- institutionalisation of fisheries credit programmes on successful completion of pilot credit to be carried out
- design of co-operation mechanisms between financial institutions, fisheries administrations and fisherfolk associations
- increase of effectiveness and cost-efficiency of fisheries credit programmes.

MEASURES TO INCREASE COST EFFICIENCY OF LENDING PROGRAMMES FOR ARTISANAL MARINE FISHING COMMUNITIES

An important pre-requisite of any institutional credit programme which is to cater to the fisheries sector in general and to fisheries management related credit needs in particular is the cost-efficiency of the programme. When discussing how lending procedures can be designed in a cost-efficient way, the special characteristics of capture fisheries as compared to other types of economic activities such as farming and aquaculture first have to be considered .

Characteristics of capture fisheries and their implications for lending procedures

While aquaculture and farming have much in common as far as credit is concerned, small-scale capture fisheries differ in many respects from agriculture and similar rural occupations. Likewise, there are considerable differences between fishing communities and agricultural communities which should be reflected in the lending procedures applied to this sector of the economy. These differences are more distinct in marine fishing communities than in inland fishing communities.

Some of the more important features of small-scale fisheries with regard to credit are summarized below:

(a) Compared to farming, small-scale capture fisheries exploit an open access resource which is subject to biological and economic over-exploitation. For this reason, fisheries programmes to be supported by credit require prior estimates and continuous monitoring of the availability of adequate aquatic resources so that the maximum sustainable economic yield of the fisheries is not compromised.

(b) Fishery activities are undertaken in a delicately balanced ecological environment which is very sensitive to interventions and encroachments by man. Credit programmes must be linked to measures which contribute to environmental conservation.

(c) Artisanal fishing communities lack traditional collateral such as land and other fixed assets as well as viable local guarantors, which is why more emphasis needs to placed on proper identification of investments, proper appraisal of loan applications and proper monitoring of loan utilization and repayment.

(d) Literacy levels of borrowers are exceptionally low and documentation requirements should be kept to the absolute minimum and as simple as possible.

(e) Settlements of fishing communities are usually scattered along the coast and difficult to access particularly during rainy seasons. In order to facilitate the effectiveness, including cost effectiveness, of lending operations, lending procedures need to be decentralized, streamlined and standardized as far as possible.

(f) Income and expenditure is relatively unpredictable and unevenly distributed throughout the year. Unlike in crop cultivation and other agricultural activities, where income is earned only for a few short periods of the year, i.e. after harvesting, artisanal fishing, being carried out almost daily during most parts of the year, has a continuous income and expenditure pattern. The distinctly different cash flow in artisanal fishing when compared to agriculture needs should be reflected in disbursement and repayment schedules and also calls for timeliness of loan disbursements and for the flexibility of loan repayment schedules, including rescheduling of loans as an integral part of arrears control measures.

(g) By the nature of their hazardous occupation which involves daily uncertainties and dangers and an unpredictable future, fisherfolk often lack long-term planning and saving habits and skills and incur relatively high consumption expenses. These characteristics need to be reflected in saving strategies, deposit forecasts, borrower education programmes and anticipated equity contributions.

(h) Most credit requirements in the artisanal fisheries sector are for capital investments and thus for medium-term credit, while the bulk of agricultural credit is for seasonal inputs and of a short-term nature.

Transaction costs in lending operations to the fisheries sector

The three principal cost components of lending of a financial institution consist of the cost of funds, the actual transaction costs of the lender and the provisions for bad debts which are made to cover the risk element inherent in advancing credit for any particular purpose.

While the cost of funds depends on what external (i.e. loans and grants from central banks and donors), and internal (i.e. various types of deposits) financial resources are used for lending, certain components of the transaction costs of the lender as well as the risk element depend to a large extent on the lending procedures which are applied to a particular economic activity, sector of the economy, group of clients, etc.

Among the transaction costs of a lender, the components which are most directly affected by lending procedures include time and cost of field staff and of supervisory staff, cost of staff travel and travel allowances, cost of purchase/hire and maintenance of vehicles, and cost of establishment and maintenance of coastal branches.

The lending procedures which have the greatest impact on these transaction costs are the procedures for technical and financial appraisal of loan applications, the repayment schedules, the procedures for supervision of loan use and the monitoring of loan recovery.

Compared to agricultural and rural lending, transaction costs in small-scale marine fisheries can be relatively high because of the following reasons which are related to some of the special characteristics of the fisheries sector described above:

- Identification of credit needs and technical and financial appraisal of loan applications can be time consuming and complicated if done on a case by case basis, since the credit needs of the small-scale fisheries sector are complex and include medium as well as short term advances for various craft-gear combinations, marketing and processing facilities as well as supporting working capital requirements.

- Identification and appraisal of credit needs also require familiarity with the socio-economic and technological features of the small-scale fisheries sector. This familiarity can be achieved through training of bank staff, employment of fisheries specialists and co-operation with specialised technical and professional agencies and organizations such as fisheries administrations, fishermen/women organizations, consultants and NGOs.

- Loan recovery can be negatively affected by inappropriate repayment schedules which do not reflect the actual cash flow associated with the investment. Sufficient time and effort is needed to prepare appropriate repayment schedules together with borrowers and also for rescheduling of loans.

- Because of the scattered nature of the settlements of fisherfolk and their lending sites, and because of the fact that settlements and lending sites are sometimes difficult to access, considerable staff time and transport expenditure are incurred for disbursement of loans in kind, supervision of loan use, loan recovery and its monitoring and for field appraisal of loan applications.

In order to increase cost-efficiency, all contacts between bank and clients need to be minimised, streamlined and made more efficient.

Measures to increase cost-efficiency

An important first step in introducing cost-efficiency right from the start, is to clearly define objectives and contents of a particular lending programme for the small-scale fisheries sector, e.g. the lending policy and the lending norms in close consultation with the target group.

Based on a specific and need and target group oriented lending policy, a standardized lending programme should be prepared which lists all investments and activities for which credit is available, including all possible combinations of fishing craft and gear, marketing and processing facilities and related working capital requirements as well as non-fisheries income generating activities together with their expected cash flows and related repayment schedules.

The lending programme should be up-dated annually. The target group of the lending programme, viz. fishermen, women and their associations, should fully participate in the formulation and up-dating of the lending programme.

When appraising the technical and financial feasibility of a large number of individual loan applications, the standardized financial analysis contained in the lending programme should be used rather than doing a complete and fresh investment appraisal in each individual case.

The standardized financial analysis only needs to be checked/confirmed with regard to location and operational conditions of individual borrowers and necessary adjustments need to be made. Furthermore, the repayment capacity of borrowers needs to be realistically assessed in terms of fishing and non-fishing income, equity contribution, collateral, guarantors, liabilities and commitments. A considerable amount of staff time and cost is saved this way which would otherwise be wasted on duplication and repetition of individual investment appraisals and also lead to unnecessary delays.

By first preparing a lending programme, a bench-mark is created, against which the implementation of a credit scheme can be monitored and re-oriented, if necessary. In order to further save staff time, borrowers' time and money, sanctioning authority for loans needs to be decentralized.

From the very beginning of a lending programme for the small-scale fisheries sector, a schedule for the conduct of field visits for the purpose of supervising loan use, monitoring loan recovery, collecting loan instalments, attending to cases of default and rescheduling loan repayment should be carefully planned to optimise the use of staff time and transport facilities.

If field visits are carried out in a well timed and co-ordinated manner, the time to maintain regular contact with a large number of borrowers can be greatly reduced. Village meetings and other group contacts can be arranged to meet a large number of borrowers at the same time and discuss common issues.

Field visits should also be used for deposit mobilisation. This would not only reduce their costs but also contribute to a closer link between bank and client and facilitate the assessment of their credit-worthiness.

One could also consider the use of mobile banking units which, in addition to the supervision of loan use, monitoring of loan recovery, rescheduling of loans, collection of loan instalments and deposits, could offer other banking services.

The monitoring of loan recovery in on-going lending programmes, involving a large number of villages and landing sites, bank branches and borrowers, can be greatly facilitated by the use of micro-computers for the identification of the factors which influence loan repayment at any point in time in an on-going credit scheme. The information can be collected from a representative sample of borrowers, and most would be identical to what is already contained in the loan documentation. Additional information to be supplied by those bank branches which belong to the sample is limited to the accumulated monthly or quarterly rate of loan repayment and some operational indicators of the particular bank branch.

Micro-computer software for monitoring of loan recovery in fisheries lending has been developed by the Fishery Industries Division of FAO and is available for use by financial institutions.

The cost-saving advantage of using micro-computers for monitoring of loan recovery, based on monthly routine information from selected branches on the repayment of selected borrowers of these branches, lies in the fact that the managers of the credit scheme, at any point in time, can quickly identify the factors which have a positive or negative impact on loan recovery and can take corrective measures to re-orient the appraisal of new loan applications, change the supervision of loan use or modify the entire lending policy and lending programme, if necessary.

Without using a micro-computer, the process of analysing the reasons behind poor loan recovery in a lending programme which covers a large number of individual borrowers and bank branches, is time-consuming and costly. It involves field investigations by individual bank branches as well as analysis of data and compilation of reports at branch level, regional level and headquarters. By the time a clear picture emerges and remedial steps can be taken, the situation in the field may already have changed and it could be too late to introduce corrective measures.

CONCLUSION

As experiences in many parts of the world show, and as explained above, the introduction of community-based fisheries management programmes is greatly facilitated by the availability of appropriate institutional credit facilities.

This is particularly true for artisanal marine fishing communities which because of their weak economic and social status, need financial support in addition to training and extension support in order to invest in modification of traditional fishing practices, adopt new fishing methods, change to culture fisheries or to take up employment outside the fisheries sector.

The paper also describes how institutional credit and financial support can be provided in a cost-efficient manner. The latter is considered essential in a macro- and micro-economic setting as well as in the context of on-going financial sector reforms which aim at reducing costs and enhancing competitiveness of financial and related services.

PRIVATISATION OF THE NATIONAL FISHERIES COMPANY OF TRINIDAD AND TOBAGO - CASE STUDY

by

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BACKGROUND

National Fisheries Company Limited was established in 1972 when the Government of Trinidad and Tobago acquired ten (10) shrimp trawlers. The shrimping operations were further consolidated when in 1973 a large shrimp processing plant located near to the port on Wrightson Road, Port of Spain was acquired from International Foods Limited, a subsidiary of Cannings and Company Limited.

In 1973, the Government of Trinidad and Tobago contracted a Canadian Consultancy Firm, CANPLAN, to undertake a feasibility study of the Fisheries Sector of Trinidad and Tobago. The Study covered all aspects of the fisheries sector, including the possible expansion of the National Fisheries Company as a major vehicle in fisheries development in Trinidad and Tobago.

The National Resources Study conducted by the consultants suggested that there was available demersal marketable fish in Trinidad and Tobago marine acreages and the Region to sustain a large fish and shrimp plant. The market study also suggested that given the excess of demand over regional production that there was scope for import substitution. The regional production in 1971 was estimated at 70,500 tonnes compared to a total consumption in the region of 270,000 tonnes resulting in the import of 199,500 tonnes of fish and fish products to a value of $56Mn.

Therefore based on market conditions and the assessment of fisheries resources, the consultants were of the view of that there was a role for National Fisheries Company Limited as a major player in the development of the sector.

The feasibility analysis of National Fisheries Company Limited as a fish and shrimp processor concluded that the project was viable with a 25% return on investment. The total investment cost of the project was estimated at $41Mn with $13.5Mn representing the cost of Plant and Infrastructure and $27.5 for the acquisition of 75 new vessels. The financing arrangements provided for $10Mn as equity and $31Mn as debt.

Consequent on the CANPLAN Study, Government agreed to the erection of a new fish and shrimp processing plant at Sea Lots, Port of Spain. The construction and procurement of equipment for this plant was subject to lengthy delays and massive cost over-runs and was finally completed in 1979 at a cost of $47Mn. Essentially the majority of the expenditure was incurred in plant, equipment and infrastructural works. The Company's fleet of vessels was increased by fourteen (14) vessels, mainly trawlers, instead of 75 vessels as originally planned.

PRODUCTION CAPACITY

The rated capacity of the Plant was 7,500 tonnes of fish and shrimp in product weight annually on a eight hour shift five day work week. For secondary processing the rated capacity was about 900 tonnes of breaded or cooked products, 680 tonnes of salted or smoked fish and 1,130 tonnes of fish meat in product weight. The Plant utilities included the following:

44 tonnes per 24 hour ice making
160 tonnes ice storage
750,000 gal. potable water storage
280,000 gal. fuel storage and dockside distribution
3 finger piers for vessel unloading and servicing
100% standby diesel generator
80 hp high pressure steam boiler
22 tonnes per day freezing capacity
2,270 tonnes frozen storage

The Company enjoyed duty exemption on imports of the following items:

i. plant, machinery and equipment;
ii. raw material;
iii. canned tuna (expired on December 31, 1991)
iv. spare parts for fishing vessels.

Other privileges enjoyed included:

i. the granting of Sufferance Port Status to National Fisheries Company Limited's port;
ii. approval of bonded warehouse on National Fisheries Company Limited's premises.

OPERATIONS

During the period 1972 to 1979, the Company was principally involved in shrimping and shrimp processing. The shrimp was caught on the continental shelf of North-Eastern South America by State-owned, National and foreign based trawlers and brought to the plant in Trinidad for processing and export to the North American Market.

From 1977 the Company's shrimping operations were severely curtailed when the Company's trawlers and other foreign boats were denied access to the Brazilian and Guyana fishing grounds. The Company got a reprieve when in 1978 an agreement was signed between the Government of Trinidad and Tobago and Brazil providing for the exploration of Brazilian fisheries by a joint venture arrangement.

In April 1981 National Fisheries Company Limited was able to effect such a joint venture with a Brazilian firm, Leal Santos. This arrangement lasted until 1985, after which the

Company disposed of its trawlers. Notwithstanding the lack of a fleet the processing of shrimp remained one of the Company's major revenue earners. The Company's supplies of shrimp were sourced from local fishermen operating trawlers on the South Coast of Trinidad and Tobago and the Gulf of Paria. The Company also purchased fresh fish from these fishermen for processing.

In 1985 the Company embarked upon a new phase of its activities when it entered into charter agreements with foreign based fishermen (Taiwanese) operating in the South Atlantic who were lured to Trinidad by the availability of subsidised fuel. Under the arrangement National Fisheries Company Limited operated as a terminal transshipment point for Taiwanese long liner tuna operations. National Fisheries Company Limited received a fee for each for ton of tuna transshipped and also for other services provided. It also benefited from the purchase of by-catch of the tuna operations at favourable prices. The Company was able to offer the fuel incentive to fishermen as it was the only approved retail outlet for subsidised fuel.

Government provided the fuel facility to National Fisheries Company Limited so that the Company could attract the required raw material for its plants. This incentive did not produce the desired results as the Company did not possess the capability to process tuna and locals were under no obligation to sell their catch to the Company. Further, when the fuel subsidy was reduced from TT$0.50 per litre in 1986 to TT$0.21 per litre in 1988, so too did landings of foreign vessels. Tuna landings which peaked at 10,000 tonnes in 1986 fell to 1,409 tonnes in 1988. Notwithstanding, fuel sales emerged as one of the main revenue earners of the Company and by 1991 represented 50% or $14Mn of the Company's total revenue. In 1992 Government agreed that the fuel subsidy to all foreign vessels be discontinued. This discontinuance of the subsidy adversely affected National Fisheries Company Limited as in excess of 75% of its fuel sales were to foreign vessels.

OTHER ACTIVITIES

The Company was the sole importer of canned tuna into Trinidad and Tobago until 1994 when Government liberalised the market.

FINANCIAL PERFORMANCE

National Fisheries Company Limited was a loss making concern since inception. The primary reason being the Company's inability to generate the level of throughput to sustain its operations. One of the major assumptions of the feasibility study was that the National Fisheries Company Limited would acquire some 75 vessels supplying the Company with an average of 2,500 tonnes of shrimps and 12,500 tonnes of fish annually. This did not materialise as unplanned expenditure in the construction of the plant meant that limited funds were available for the acquisition of new vessels. The Company acquired 14 new vessels, primarily trawlers, which together with privately owned vessels were able to supply the Company with up to 3,500 tonnes of shrimp annually. On the loss of the access to fishing grounds off Brazil and the Guyanas the Company's ability to source raw material was further exacerbated. Throughput declined from a peak of 3500 tonnes per annum to 650 tonnes per annum.

This lack of throughput also meant that there was not sufficient waste generated for economic processing by the Fish Meat Plant. As a consequence the plant was never put into operation.

By 1984, the Company's financial position had become untenable. At that time the Company had accumulated losses of $104.8Mn which completely eroded the issued and paid up share capital of $50.8Mn. The Company continued as a going concern due to Government's support both through direct funding and the guarantee of credit facilities provided by local banks.

In a bid to turnaround the Company, Government in 1985 agreed to a financial package for the Company. Essentially, the package consisted of:

- Rationalisation of staff and employees;
- Conversion of Government loans into equity;
- Refinancing of the Company's bank loans;
- Infusion of new equity.

There was a delayed implementation of the financing package. As a result funds earmarked for rationalisation costs and working capital were diverted to meet outstanding debt service payments and payables. In the circumstances, the Company continued on its downward spiral. As at May 31, 1987, its accumulated loss stood at $139.5Mn. The last available final accounts produced by the Company were for fiscal 1987 and its last audited accounts were for fiscal 1984.

The Company's performance over the period 1984 - 1987 was follows:

$'000	1984	1985	1986	1987
Sales	39,498	30,729	37,674	83,288
Expenses	64,007	53,039	48,380	87,357
Loss for Year	(24,509)	(22,310)	(10,706)	(4,069)
Accumulated Losses	(104, 780)	(124,734)	(135,440)	(139,509)
Assets	45,578	46,237	46,156	59,359
Accounts Payable	20,608	25,2812	21,461	32,520
Bank loans & Overdraft	29,229	32,168	34,016	36,869
Shareholder Loans	49,642	61,642	76,381	80,281
Issued Share Capital	50,878	50,878	50,878	50,878

In May 1987, Government appointed a team to review the operations of State Enterprises including National Fisheries Company Limited. In addition, in early 1988 a new Management Team was installed to manage the operations of the Company.

The Team appointed to review the operations of National Fisheries Company Limited submitted its Report to Government in February 1989. Government accepted the Report and recommendations of the Team, including the following:

(i) Government should put no further money in the Company as it was an irretrievable business failure.

(ii) The Company should be wound-up and the assets disposed of by a liquidator.

Pursuant to that decision, several initiatives were undertaken to minimize or eliminate the financial burden on Government. These initiatives included:

- the appointment in 1989 of a team to negotiate the sale of assets of the Company.
- the proposed formation in 1990 of a joint venture with Venezuela based on National Fisheries Company Limited's assets with National Petroleum Marketing Company Limited as Trinidad and Tobago's nominee and the Pocaterra Group as the nominee of Venezuela.
- the acquisition by National Petroleum Marketing Company Limited of the assets of National Fisheries Company Limited.

All of these initiatives were unsuccessful and led to a further deterioration in the financial condition of the Company. As at December 31, 1991, the Company had accumulated losses of $200Mn which completely eroded the issued and paid-up share capital of $50Mn. In addition, the Company had liabilities of $87Mn , of this amount $64Mn represented bank debts which were guaranteed by Government, $14Mn were owed to the Board of Inland Revenue and $9Mn were owed to sundry creditors.

During this period the Company's operations were downsized. All employees were severed and fifty-two (52) were re-employed on a month to month basis to keep the Company operational. Government also had to guarantee additional credit facilities in order to sustain the Company's operations. The Company's main source of revenue then was from its transshipment operations in the form of fees for services and fuel sales.

DIVESTMENT

Given the precarious financial position of the Company, Government in 1992 appointed a team to further review its status and future role. The team in its Reports recommended that Government should expedite the winding-up of the Company.

Subsequently, Government acting on the advice of a firm of consultants agreed that National Fisheries Company Limited be divested by way of sale of assets by a liquidator appointed in a Member's Voluntary Winding-up.

In December 1993, Mr Michael Toney of the accounting firm Mark Castillo Toney & Company was appointed liquidator to wind up the Company in a Members' Voluntary Winding-up. On January 27, 1994, the liquidator circulated an Information Memorandum to potential investors residing locally and abroad, with the date for the opening of bids scheduled for April 11, 1994 and finalisation of the transaction by mid-May, 1994. In response to representations made by prospective investors, the liquidator extended the bid date for the submission of bids to May 31, 1994. In all twenty-six (26) prospective investors purchased the Information Memorandum.

Under the Companies Ordinance a Liquidator is legally empowered to sell the assets of a company without further approval from the Shareholder. However, having regard to Government's stated policy of transparency and accountability in the divestment process, the liquidator established a Bid Evaluation Committee comprised of the liquidator as Chairman, and a representative each from the Ministry of Finance, Investments, the Divestment Secretariat and the Port Authority of Trinidad and Tobago.

On May 31, 1994, the revised date for submission of bids, three proposals were received. The Committee evaluated the proposals and selected the highest bid as the preferred bid.

Given the vagueness of financial assurances submitted by the bidders in their proposals, and their failure to provide additional evidence of their ability to finance the purchase transaction, the liquidator decided to proceed as follows:

(i) to reject two of the bids as both fell well below the threshold value of TT$15,000,000 established for the purchase of the Building and Equipment;

(ii) to reject the bid of the highest bidder after it was determined that the company could not finance the transaction.

Consequent of the rejection of the three bids and given that no other tangible expression of interest existed, the liquidator invited Kwo Jeng Trading Limited to submit a bid. Kwo Jeng Trading Limited was a foreign based entity which had been using the facilities of National Fisheries Company Limited for transshipment for the last eight years.

The Company, after the closing of bids had indicated its interest in acquiring the assets of National Fisheries Company Limited. However, in the circumstances, the liquidator could not then consider its proposal.

Following negotiations, the liquidator and Kwo Jeng Trading Limited agreed on a price of US$2.3Mn for the assets of National Fisheries Company Limited.

The Agreement for Sale and the Lease Agreement provided inter alia the following:

(i) the payment by Fisheries International (a subsidiary of Kwo Jeng Trading Limited) to the liquidator for the purchase of the assets of the Company in the amount of US$2.3Mn apportioned as follows:

	US$
as to Buildings	1,480,000
as to Trade Marks	20,000
as to Equipment	800,000
Total	2,300,000

Fisheries International paid the sum of US$700,000 (30% of the purchase price) to the liquidator by way of a deposit on account of the purchase price of the assets on October 18, 1994, with the balance of US$1.6Mn. being paid on January 06, 1995.

(ii) Deed of Lease which was executed by Port Authority and Fisheries International for a period of thirty (30) years with an option to renew for a further thirty (30) years in respect of 3.8335 hectares of the lands occupied by the Company at an annual rental fixed of US$40,788 exclusive of Value Added Tax for the first five (5) years of the first term and subject to review for the next and every other period of five (5) years. {The Company occupied two (2) parcels of land at Sea Lots, Port of Spain - one (1) parcel of approximately 1.4149 hectares and other of approximately 3.3808 hectares, a total of 4.7957 hectares. The lands being leased by the Port Authority to the new Lessee (Fisheries International) comprise 3.8335 hectares.};

(iii) Section 2 of the Lease Agreement provided that within one (1) year from the commencement of the Term of the Lease for the Lessee:

a. to upgrade the Sabroe Refrigeration Plant, the Ice Plant, Cold Storage Rooms, the Water Pumps and Plumbing Systems, the Administration Building, the Roofs of the other buildings of the demised premises, the main Electrical System, the Cafeteria and the Workers Facilities;

b. to construct two (2) finger piers;

c. to dredge the adjoining harbour to a design depth of between 15 feet and 18 feet Mean Low Water Ordinary Springride to accommodate large vessels.

d. to ensure that the Fish Port and Plant are fully operational within eighteen (18) months of the commencement of the Lease; and

e. not to pull down or remove from the demised premises before the expiration of the first five (5) years of the term any of the buildings and principal plant and equipment which are present on the premises without the prior consent in writing of the Lessor.

CONCLUSION

National Fisheries Company Limited was expected to play a major role in the fisheries development of Trinidad and Tobago. During its existence the Company did provide some of these services in varying degrees.

The Company provided a market for the local artisanal and commercial industry. Between 1983 and 1985, fish and shrimp worth $18Mn.TT were purchased from local fishermen at an average of $6Mn TT annually. The average fell to TT$4Mn. annually between 1986 and 1990 and from 1990 the average was reduced even further.

In addition National Fisheries Company Limited put on the local market annually frozen fish, shrimps and their products, most of the raw material for which came from local purchases. The combination of these actions served to remove fish and shrimp from the fresh produce market and redistribute them to the frozen produce market, thus stabilizing prices for the fishermen.

National Fisheries Company Limited for many years supplied equipment, facilities and services for the local fishing industry. It was anticipated that the presence of the Company would encourage the development of the long line fisheries, particularly for the migratory pelagics in Trinidad and Tobago's Exclusive Economic Zone. However, there was limited exploitation of the country's EEZ by local vessels, and National Fisheries Company Limited derived no substantial benefits from these activities.

The Company's contribution to the fisheries industry was limited mainly by its poor financial condition. Its failure to meet the demands of the industry resulted in an increase in the number of privately owned processing plants. The establishment of these plants contributed to the decline in the Company's revenues.

As a commercial entity, the Company's failure can be attributed to a number of factors including:

- inaccurate assumptions that formed the basis for the expansion of the Company;
- the excessive cost of the Plant;
- poor Management;
- Iiadequate financial resources.

One of the major assumptions of the feasibility study that formed the basis of the expansion of National Fisheries Company Limited was that of unlimited access to raw material. This for reasons previously outlined did not materialize and combined with huge overheads from an oversized plant contributed heavily to National Fisheries Company Limited financial distress.

The Company's operations were sustained primarily by the support from Government both direct and indirect, and the privileges afforded to it such as subsidized fuel and the monopoly on imports of canned tuna. In addition in 1987 the Company was able to exploit a two-tiered foreign exchange rate to its benefit. The withdrawal of Government support and these privileges signalled the end for National Fisheries Company Limited.

POST DIVESTMENT

Consequent on the sale of its assets, the liquidator has taken steps to wind-up the National Fisheries Company Limited. In the process, Government has assumed responsibility for settling outstanding taxes and long-term debts. The proceeds from the sale of its assets are being utilised to meet debts owed to trade creditors. It is anticipated that the Company would be wound-up shortly.

Fisheries International, the successor company to National Fisheries Company Limited, has invested approximately $11Mn of a budgeted $12Mn to date in the upgrading and refurbishment of plant, building and port infrastructure.

The Company's main activity continues to be its transshipment operations which have been expanded. Its annual landings are now 5000 tonnes, of which 75% are in respect of tuna and the remaining 25% by catch. Its shrimp and fish lines have been activated but have been constrained by the Company's inability to source reliable and competitive supplies of raw material. There has been no increase in permanent employees who number forty-two (42) persons. However, with the increase in transshipment activity there has been an increase in temporary workers.

THE ROLE OF FINANCIAL INSTITUTIONS IN THE DEVELOPMENT OF THE AQUACULTURE INDUSTRY IN THE CARIBBEAN

by

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INTRODUCTION

The development of the Aquaculture industry in the Caribbean has been a recent phenomenon when compared with many other countries such as China, Taiwan and Japan. Even though this is true with regards to time, there reside on many islands sophisticated systems producing a number of species of aquatic life which compare favourably with the rest of the world. The technologies utilized are mainly imported and in some instances have been improved or modified with local or regional expertise to suit particular environments.

As the lifecycles of more aquatic species are understood and feeding requirements for the different stages of development are ironed out, the choices increase, enabling entry of persons or entities which would have been excluded because conditions did not allow them to produce the traditional products commonly used in aquaculture. Systems have been developed using the latest technologies which even though expensive, allow for organisms to be grown outside of their natural habitat, such as tilapia, a tropical species being grown in thermal effluent from nuclear plants in Belgium, in sea water in Jamaica and the Bahamas or carp and eels in treated effluent from sewage in Germany. The development of these sophisticated technologies has increased the dependence of entrepreneurs on external financial resources as infrastructural costs are typically high.

THE NEED FOR AQUACULTURE

Throughout the ages, man has kept fish in captivity for a variety of reasons, such as feeding their rulers or providing protein for the family. As man became more efficient at exploiting the seas, the thought that fish could one day become scarce was inconceivable. However, population pressures in the last century have destroyed the myth and several fisheries have either being irretrievably destroyed or have been closed in hope that stocks will regenerate in a few years. This has led to more emphasis being placed on the work of aquaculturists worldwide. Several countries have now developed viable industries in the production of salmon, trout, eel, tilapia, carp, shrimp, spirulina (alga) and oysters. Japan is a world leader in the production of sea bass, shrimp and seaweed, Ecuador in marine shrimp, Israel in tilapia, Norway and Chile in salmon to name a few.

The necessity to produce protein, instead of depending on wild catches has also being compounded by the increasing pollution of our water bodies, resulting in the contamination of large traditional fisheries such as in the Great Lakes. The unpredictability of 'El Niño' and its effect on the anchovy fishery in Peru is also testimony as to the likely outcomes when there is no control over the environment. It is obvious therefore, that aquaculture as an industry is here to stay and as pressures increase for additional food supplies, the need for more efficient production systems operating from less available land and water bodies will be more pressing.

Aquaculture in many respects closely resembles traditional aspects of Agriculture. The basis of any commercial production system is to efficiently and profitably produce on a consistent basis a product which has a ready market. Work therefore is always being carried out on improving production systems in order to increase economic viability. Use of land, water, nutrients, good seed stock and production of uniform sized product are some of the commonalities between the two.

In some places, fish have been impounded in small areas and harvested at will with no or minimal care, while in others, there has been no history of fish farming. Introduction was made in many countries during the twentieth century with the emphasis being either on subsistence systems or adaptation of high technology methods. In some countries, aquaculture systems have therefore been transferred directly as a high technology enterprise to the private sector with local research and development playing at times an insignificant role in improving production systems.

As a result, the necessary support systems which should develop along with the growth of the industry sometimes does not occur and investors may become wary of putting money into projects which depend solely on external resources.

STATUS OF WORLD AQUACULTURE

It has been estimated that aquaculture has been showing consistent growth since 1986 of 8 to 14 percent per year. The industry was estimated to be worth $32.5 billion in 1992. Based on reports to the FAO, 35 countries produce 98% of the tonnage and 96% of the gross dollar value. China is the single largest producer of aquaculture products, producing in 1993, approximately 8 million metric tons, slightly more than their wild catch.

Aquatic plant production is dominated by the Asian countries with China producing 63%, Japan and the Korean Republic each producing approximately 9.5% and the Philippines 5.3%. Countries outside of this region that can be considered large producers include Chile and Norway. India has been involved in aquaculture for many years and has developed a comprehensive programme of stocking reservoirs and lakes with carp and other native fish. Indonesia and the Philippines produce a wide variety of products such as seaweed, shrimp, fish and oysters. Taiwan has a reputation for production of shrimp and marine fish.

A large segment of the aquaculture industry is production of ornamental fish for the aquarium trade. In 1994, the worldwide value for imports was US$ 260 549 000 with the USA being the single largest importer followed closely by Japan. The largest exporter by far of aquarium fish is Singapore, exporting over US$45 million in 1993 out of a world total of $146 894 000. They are followed distantly by Hong Kong with earnings of $15 million. The State of Florida, whose introduction to aquaculture began in 1926, is now the largest producer of fish in North America for the trade. As the state with the most conducive weather for fish culture, other species for food production are also being grown with tilapia farms established in the south. Other states, such as Louisiana have developed crayfish culture. Mississippi, Arkansas, Alabama and Georgia form the heart of the catfish industry and other states are actively developing programmes in shrimp culture such as Texas and Hawaii.

Africa has had many projects sponsored by international agencies to develop programmes. To date there are not many large scale aquaculture industries in any of the countries which have had ongoing programmes. The Middle East however, has in Israel an example of a country which is constantly seeking to improve and increase its production capabilities. This is evidenced by the high level of research work being done on different aspects of fish culture and continuous efforts to become year round producers of fish. Some of the oil rich countries like Kuwait and Saudi Arabia have been buying technology to develop programmes and have been sending persons abroad for training to enhance their capability.

In Latin America, Chile, Ecuador and Panama have developed valuable industries in salmon and shrimp which contribute significantly to their export earnings. Mexico has a vibrant programme and are major producers of Spirulina.

The Caribbean islands, have generally had a later start than some others in the region but Cuba, Jamaica, Puerto Rico and the Bahamas had by the 1980's commercial enterprises established in tilapia, freshwater shrimp and marine oysters. St Lucia has been working on seaweed and shrimp culture, Dominica and Guadeloupe on shrimp and tilapia while Trinidad has been examining tilapia along with some of their native species. Guyana has been interested in tilapia and native species as well and some of the large sugarcane producers some years ago had shown interest in diversifying into aquaculture.

THE CARIBBEAN EXPERIENCE

Travelling through the Caribbean one sees many examples of failed aquaculture ventures. These reminders of failure conjure up to cautious holders of capital, images of large sums of money going down the tubes. This is not the entire picture however, and one needs to examine all the factors which contributed to the demise of many of these efforts. Factors such as choice of culture species, choice of technology, site selection, inadequate supply of broodstock and or growout stock, and inadequate technical expertise are some of the things which adversely affect the viability of many operations. Other areas which oftentimes do not have enough emphasis placed on them are, lack of adequate market study, rate of deterioration of harvested product and the effect of praedial larceny.

These examples provide templates of the important aspects of aquaculture ventures which need to be thoroughly investigated and effectively addressed so that the 'comfort levels' of the financial institutions are increased in viewing aquaculture as a viable industry. Several efforts have been made since the 1950's to develop aquaculture projects in a number of the Caribbean islands as well as on some of the mainland territories of the region. Tilapia, for example was introduced into St. Lucia in the 1950's and subsequently into Jamaica in the 1960's.

Jamaica

Efforts to develop an aquaculture industry in Jamaica, however only started in earnest in 1976, when a USAID project was implemented to introduce tilapia culture to the island. By 1980, a number of requests had been made from persons interested in investing in commercial operations. Small loans were available fromThe Peoples Cooperative Bank for persons having up to 2 ha of land at interest rates of 9% per annum and a ceiling of J $80 000 which allowed farmers to construct a few ponds, buy fingerlings and feed for the initial crop. This facility has been increased to a maximum of J$500 000 with an interest rate of 17% per annum. A group of persons can come together and borrow up to J$1 million. This rate of interest is about to increase and will no doubt have the effect once more of curtailing investment.

Larger enterprises, required larger sums of money which could only be obtained from commercial banks at higher interest rates. A lack of knowledge about aquaculture resulted in resistance at first, but meetings and seminars were held to which bankers were specially invited to introduce them to the technology, needs of the industry and the rationale for investing in this activity. Discussions were held on the possible programmes that could be developed by the financial sector to provide funds for entrepreneurs wanting to invest in such a high risk venture.

In the early 1980's, corporate entities started to show an interest and the Jamaica Broilers Group started development of a freshwater shrimp farm in 1982 with technical expertise from Israel. A private group of Israeli investors, shortly after, developed with the Government of Jamaica an intensive tilapia hatchery and growout facility which up to that time was possibly the largest such entity in the Caribbean. At peak, this facility produced over 546 000 kg of fish per year. As a result of these efforts, commercial banks started to show an interest in developing loan portfolios in Aquaculture.

A number of individuals have for many years kept aquarium fish, producing small quantities for the Jamaican market. Interest in commercial production has grown significantly in the late 1980's and 1990's due to proximity to the large North American markets, periodic frosts which create shortages, increased knowledge about fish production and improvements in packaging and transportation. Commercial entities are therefore now being asked to respond to this type of production which is not for food consumption and whose marketability is therefore based on a different set of parameters.

The Bahamas

In the Bahamas, efforts have been made by the private sector to get several ventures in both marine and freshwater aquaculture implemented. There has been no proactive government programme to develop the industry even though some work is being done by the Fisheries Office. Some of the investors appear to be able to secure financing as a result of having other business ventures with which the bankers may be familiar. Other ventures have been started by foreign investors using external sources of funding. The experience of a number of islands is similar resulting in the push being left up to individuals and financial institutions who have been convinced about the viability and necessity of developing non traditional food sources. In many instances these are expatriates who are sometimes looking for an environment which is less regulated to set up their ventures.

Dominica

The Ministry of Agriculture and Fisheries has an ongoing programme, started in the 1980's to develop projects on the island. Extension staff are being trained to transfer technology to farmers and to monitor operations. The Ministry of Agriculture and Fisheries has a project with a group of Taiwanese nationals who have a hatchery and small growout freshwater shrimp facility. Technical training for staff comes from them along with training courses in Jamaica and elsewhere. The Agricultural and Industrial Development Bank has lent money for projects in shrimp and tilapia farming and has a trained officer on staff to monitor the bank's portfolio.

Puerto Rico

In 1987, government developed an Aquaculture Policy aimed at identifying and developing new opportunities and establishment of commercial operations. Government has put in place incentives to encourage investment such as tax holidays. However, even though there are many sources of capital, some are difficult to obtain. The Puerto Rico Agricultural Loan Programme offers low interest financing and loan guarantees.

STAKEHOLDERS IN THE AQUACULTURE INDUSTRY

As of 1994, it was established that there were over 2 000 providers to the industry. These include, producers of feed, vaccines, oxygen, fish diagnostics, processing machines, pumps, netting, refrigeration and packaging materials. Universities, technical colleges and other teaching institutions also play a vital role in the development of programmes to train persons and to conduct research into processes to increase understanding of the mechanics of production and to improve the physical systems used for commercial production. It is important therefore that an examination of the industry does not look solely on the production factors but also on the inputs necessary to all aspects of the industry. The impact of increased funding opportunities on creation of culture facilities has positive spinoffs for all stakeholders involved. Financial institutions therefore need to be cognizant of the synergies which exist and the requirements for funding that different segments of the extended industry require.

CHARACTERISTICS OF INTEREST TO FINANCIAL INSTITUTIONS

Any new enterprise has to provide certain kinds of information to an investor or funding agency which gives assurance as to the viability of the operation. There are factors which influence whether an investor will want to invest or not. In the case of Aquaculture, it is critical that additional information which clarifies the necessity for certain aspects of production systems are clearly set out in lay man's language and its relevance to the viability of the proposed project. This is important as in many islands there are not many examples to look at and the information provided will therefore be on what the project will be assessed. A common factor is the recognition that aquaculture is typically capital and labour intensive which requires dedication as work is done on a seven day basis and workers are always on call.

The provision of complete financial statements and projections is a must. This forms the basis for the economic assessment of the project and without this, a project no matter how good it sounds will not get the attention it deserves. Many entrepreneurs, however, lack the necessary skills to develop these and should seek professional assistance to prepare same. The responsibility of the banker is to clearly state what type and detail of documentation are required.

Aquaculture has been described as both an art and a science. In the development of a project for presentation to a financial institution, precise information must be given so that true costings can be developed, the rate of implementation, management and technical requirements along with optimal levels of sustainable operation can be easily ascertained and the veracity of proposed marketing arrangements can be easily verified. Some institutions have specific criteria which have to be addressed for a project to be considered for funding. The proposal should give concise responses which directly address the issues and should be easily identifiable in the document.

There are several methods available for the culture of most of the commonly grown commercialized species and modifications are an ongoing phenomenon. The technology to be employed should not be obsolete as the project will be starting at a disadvantage and if adequate should not reside with only one person. The method to be used has to be clearly outlined so that the assessor can comprehend and analyse the viability of the proposed system. In order for this to be effective, however, the assessor has to be familiar with the principles which guide the practice of aquaculture. An example of this is the necessity for adequate supplies of water with appropriate physical and chemical characteristics to be available at all times and in close proximity to the facility. One therefore needs to be able to calculate the volumes required to see whether the quoted sources are adequate for the size of operation.

Assessment of the proposed species, its viability in a particular environment, adaptability to the proposed culture method and potential effect on the environment if introduction to the wild occurs are also important considerations. Physical parameters are important, the ability of the proposed system to maintain adequate oxygen levels to prevent oxygen crashes, thus avoiding sudden massive dieoff of stock is of significance to a banker as the entire stock could be wiped out in a few hours. The need for technically competent staff to monitor and to prevent such catastrophes increase in importance the more intensive and the more exotic the product being grown.

Feed is a very important component of any system and becomes even more so the more intensive the production method becomes. It is the single largest operating expense in an intensive operation. Farms undergoing development therefore have to foster close relationships with feed manufacturers to get the best quality feed at reasonable cost. Profitability is directly related to feed conversion and survival rates and this should be reflected in a well developed business plan.

Marketability of the product and expected returns have to be evaluated on sound information accessed from within the industry. Information on strategies to dispose of product and alternatives for storage in cases of emergency must be provided. A financial institution must get the feeling that the proposed venture has been thoroughly analysed and the pitfalls with fallback positions have been incorporated into the plan of action. It is not expected that every financial institution can employ an aquaculturist on a full-time basis, but linkages should be made between them and persons of good reputation working in the field who can be asked to assess certain aspects of proposed ventures.

A difficulty experienced by many entrepreneurs is the unavailability of affordable and adequate insurance. The protection of assets in an enterprise which may take many years to become financially viable is important especially when viewed against the predisposition of the Caribbean to experience storms and hurricanes on an annual basis. The loss of broodstock which is a critical part of many ventures and means of compensation for loss are inadequate or nonexistent in some countries. Banks are therefore placed in a position of having to protect their portfolios by other means which in many cases make accessing a loan difficult or uneconomical.

ROLE OF FINANCIAL INSTITUTIONS

Many individuals and businesses are looking for opportunities to develop commercial ventures in non-traditional areas such as aquaculture. These enterprises are not necessarily large multi-million dollar projects but can be a small one man operation who has an available and consistent market for his produce. Financial institutions should in their deliberations bear this in mind as the designation of a small farmer does not necessarily adequately describe a fish farmer. To illustrate, in Jamaica a typical small farmer is someone with less than two hectares of land, but a large pet fish producer could be located on the same plot of land.

These institutions need to recognise that aquaculture does not fit the traditional moulds and needs to have its own parameters established so that projects can be assessed against criteria specific to the industry and not try to make it fit the establishment. Development of specific standards to be agreed on by all institutions will enable projects to be assessed against the same base and remove some of the subjectivity in the exercise. In comparison to traditional forms of agriculture, the knowledge base of financial institutions is small as there are not many trained aquaculturists in the region. As a result, the rate of development is not only dependent on the number of institutions willing to lend funds for aquaculture but also available technical expertise to evaluate and monitor project proposals.

Banks in order to satisfy customer demand need to put themselves in a position where they can access information to make intelligent assessments of non-traditional types of agricultural endeavour. There is a need for constant upgrading and training of staff as persons will be seeking to develop competitive edge by utilizing sometimes risky technology to break into new markets. A more proactive approach to the acquisition of knowledge about value added processes which can enhance productivity is needed. Financial institutions therefore have to create linkages with persons with technical expertise and institutions of higher learning and also subscribe to literature which can offer insight into business trends and areas of specific interest.

Responsible financial institutions have a role to play in the sustainable development of a country or region. The development of aquaculture in the Caribbean into a stable form of investment with lower risk levels than which obtained into the 1980's means that responsibilities have to be clearly defined and accepted by all parties involved.

The person applying for funds must disclose truthfully the necessary information on which the project will be assessed and the banks must become informed about the industry. These institutions, as part of the understanding process, need to decide on methods for treating new, unproven technology versus systems which will utilize methods with proven track records for performance elsewhere.

The assessment of a project should also look at the synergies with other stakeholders and whether they are operating in tandem with the production side of the industry. The feed industry in the United States for example, has developed many specialized rations specifically for species of fish such as catfish, trout and salmon in response to the demands of the farmers. Every island in the Caribbean may not be able to sustain a feed mill but the improvement in equipment and technology of specific facilities can facilitate the ease and consistency of supply of high quality feed for islands in close proximity to each other.

The need for specialized hatching facilities geared to the production of growout stock increases as the number of enterprises increase. A sensitivity to this fact by the institutions and a proactive programme of funding geared to facilitating this type of specialized service should be put in place. Farms without sustainable sources of stock cannot be viable in the long term no matter how good other aspects of the business are. In this way, not only are other business opportunities being opened up but insurance against failure is being put in place.

Technology does not stand still, there are always improvements which can be made to any system which can affect profitability positively. Research and Development is typically not the domain of the farmer, he is neither equipped or has the time. However, when new processes have been developed it needs to be introduced to him. Banks have to look at the dissemination of information to clients as part of the process of development. Some institutions have seminars where presentations on new techniques and discussions are held at regular intervals. Newsletters, magazines, articles in newspapers, sponsorship of programmes which showcase technology at work on television are some of the means of making people aware of changes.

Information can also be transmitted through the use of field officers. Most institutions with agricultural portfolios have these in place already and only need to educate them about the principles of aquaculture. Monitoring of operations by the officers should be on a regular basis with proper reports placed on file so that a profile is developed. This increases the information base and helps to identify problems before they become chronic. Trust must develop on both sides so that potential problems can be ironed out without having a negative impact on the project. Institutions with many clients may find that there are some common problems being experienced which could be collectively addressed by provision of technical expertise for a short period. A fund for the provision of such expertise to projects of high technological content is worth exploring for larger institutions with a big client base.

In the past, many facilities failed not only because of production oriented problems, but as a result of inadequate attention to processing, storage and marketing of the products. In the increasingly competitive environment globally, the need to produce goods in forms appealing to the changing needs of the consumer gives the competitive edge to the producer. In many instances it will not be economical for a producer to setup processing sophisticated facilities but in an environment where there is a critical mass of producers the possibility for spinoff business opportunities in this area exists. An independent concern could be developed with contractual arrangements to purchase, process and market the products of several farms. An alternative could be that an existing producer who is producing a significant volume of product which justifies getting into processing could integrate this aspect into his business. Financial institutions, need to be able to spot these opportunities and to develop strategies for promoting the availability of funds and the efficiencies to be gained for having some control over the value added portion of the product.

Spinoff opportunities will continue to emerge as market needs continue to diversify, farmers and financial institutions both have a responsibilty to keep abreast of trends and adapt within the context of their environment in order to remain relevant. This strategy not only allows the industry to exploit synergies which the developed countries already know about and as a result have developed systems which are self sufficient to a large degree but offers new opportunities for additional business to be brought for financing to these institutions.

Provision of venture capital for some of the more risky ventures needs to be addressed. As mentioned before, aquaculture is capital intensive and any new venture needs to have access to relatively large sums of money compared with many other endeavours of similar size. The need for commercialized production of species whose lifecycles and feeding requirements have been decoded is becoming more urgent as population pressures increase demand for other sources of protein. The development of the industry does not only involve land based operations but marine, estuarine, riverine and lacustrine operations which have specific technologies associated with their ecologies. The ability to utilize all these media indicates the versatility of the industry and the far reaching impact its development can have on the lives of the people of the region. Some islands are not blessed with large volumes of fresh water but are surrounded by unpolluted seas in which a number of organisms can be cultured. Not having access to risk capital many ideas to exploit these resources cannot come off the ground.

Many persons have ideas, technical expertise and sometimes even an ongoing pilot project but lack the necessary skills to put together a business plan which is bankable. Financial institutions should address this by offering seminars to potential clients on business plan preparation, detailing the information that is required, strategies for implementation, marketing arrangements and contingency planning. Financial information must be presented in a clear and concise manner giving projections for at least the proposed payback period of the requested loan. This need not be a complicated exercise but the end result aught to be increased understanding of the process of what is involved in planning a venture properly and on the other side the important issues which can make or break a proposal.

Technical management is a crucial part of any project. A client should be able to convince that he is either competent or has in his employ someone capable and has access to assistance if required in emergencies. Close collaboration with local extension officers, veterinary groups or with overseas universities with expertise in a given area are options as it cannot be reasonably expected that a facility will possess all capabilities to handle every problem. It is crucial that these linkages are understood and acceptable to the institution as there is ongoing need for colloboration with others.This approach will encourage persons to come forward with their ideas who may think that they would not be entertained by an institution for a loan.

It provides for greater interaction between the clientele and the officers and promotes greater understanding of problems which are encountered in the process of securing financing for projects which are still viewed as more risky than normal. This two way flow of information will enlighten the financiers about industry specific issues and should be used to guide the process of evaluation. The Caribbean Development Bank located in Barbados saw the need for this service and set up the Caribbean Technical Consultancy Service as part of their establishment. A person with an idea, or in an existing business who needs assistance can avail himself of the service, which involves the use of a technical consultant who prepares a report dealing with the specific issue. The report may be used for approaching financial institutions for funding.

This kind of information is also useful as it helps to provide a base for the development of innovative loan schemes specific to aquaculture development which will take account of its idiosyncrasies. The fact that a farmer needs to be able to purchase new and improved broodstock or fry/post larvae for production as superior animals are developed for example is an integral part of a development plan and requires capital that a young business in unlikely to be able to generate. Banks have to be willing to extend lending facilities to incorporate expenditures of this nature.

As part of the developmental process of the region, financial institutions have a responsibility to understand the policies which governments are using to guide the process. Areas of priority focus should receive the requisite attention and resources to enable targets to be met. At the same time however, these institutions also have a responsibility to refuse to fund projects which have direct hazardous environmental implications. To be able to be effective in this regard, personnel must receive the necessary training to become aware of this extended responsibility. These powers are limited, however, but many countries have guidelines as to which practices are acceptable and what permits are required before certain enterprises can operate.

The ability for aquaculture to expand significantly in many islands is limited not only as a result of problems with funding but may be due to competition for resources such as land, water, potential conflict with conservation and environmental concerns and tourism which depends on the preservation of pristine natural habitats of scenic beauty. Possibilities exist which can circumvent some of these issues, but are more costly than traditional systems.

In countries with limited land space, intensive culture systems which produce at high levels per unit area have resolved the need for large expanses of land for the production of some species. Cage culture has also become an alternative to land based systems. The use of recycled water has also been developed and used successfully in countries such as Germany. Cleaning the effluent before being released into the environment is another way of controlling concerns over destruction of coral reefs, muddying water and enriching aquifers. These systems can only justify themselves, however, if the choice of species is compatible with the production method and if the product can fetch the required price to cover the additional operational and infrastructural costs.

CONCLUSION

Aquaculture as a relatively newcomer to the Caribbean still faces many challenges as many countries are grappling with major economic problems which affect the ability of financiers to lend money at rates which would allow for rapid development of the industry. In such volatile environments, an additional responsibility lies with these institutions to develop flexible programmes which can be adjusted to accommodate the additional pressures brought on by inflation, increased labour rates and reduction of incentives among other economic strategies which governments may have to impose to maintain competitiveness. The first five years of an aquaculture enterprise is very sensitive. The learning curve for the introduction of new technology to staff, production of seedstock, development of production schedules which result in consistent supply of end product to the market takes time. Loss of momentum from a defined plan of action results in additional expense to get back on track. Fish cannot live in confinement without food for extended periods and the resulting weight loss cannot be recovered by extra feeding once funds are in place to reorder feed, for example.

Development of a dynamic industry therefore requires a partnership of all parties concerned, understanding the volatility of the environment in which we operate and have the willingness to communicate openly and be flexible to accommodate changes which may not necessarily reap the highest profits in the short term but have the effect of enhancing the development of the industry in the medium to long term.

JOINT VENTURES IN INDUSTRIAL FISHERIES DEVELOPMENT

by

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Abstract

Following this introduction, the paper considers general issues relating to fisheries joint ventures. While this section is not exhaustive in its coverage, it defines joint ventures for the purposes of this paper, discusses the objectives and rationale for ventures from the point of view of both the government and the private sector partners, outlines difficulties for government associated with monitoring ventures, highlights areas of conflicts of interest for government as a venture partner and suggests alternatives for structuring fisheries joint ventures. The paper concludes that joint ventures in the fisheries sector might not be the best means of promoting development in that sector vis-à-vis other possibilities.

INTRODUCTION

Industrial-scale fisheries development can be pursued through a range of approaches. The investment required for this development can come from domestic or foreign sources, from the private or public sectors, or from a combination of sources and sectors. While each approach has inherent advantages and disadvantages, the joint-venture approach of combining public and private capital has attracted considerable international attention as a means of promoting industrial fisheries in developing countries.

An extensive literature has evolved concerning the role of joint ventures in the fisheries sector. Major studies have been undertaken to assess their impact in fisheries development, while regional and international conferences have considered the importance of joint ventures in the transfer of technology, capital, management and marketing skills.[2] Indeed, throughout the 1970s and the 1980s, considerable academic research focused on the need for, and prospects of, fisheries joint ventures, possibly because of interest in these ventures by international finance institutions and other specialized regional agencies (e.g. regional development banks).

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[1] The views expressed in this paper are largely based on the author's experience in negotiating five fisheries joint-venture agreements in the South Pacific. These joint-venture involved four tuna joint ventures and one prawn joint venture. The author also served as a government appointed director on the board of directors of Papua New Guinea's largest prawn fishing company - a joint venture company between the Government of Papua New Guinea and a consortium of Japanese companies.

[2] For example, the United Nations Centre on Transnational Corporations (UNCTC) and the University of Washington (Seattle, U.S.A.) have undertaken major research projects relating to fisheries joint ventures. However, in recent years international interest in joint-venture study appears to have declined, perhaps as a consequence of heightened interest in privatization and a recognition that many joint-venture arrangements have performed below expectations.

In most cases. the literature on fisheries joint ventures implicitly assumes that these commercial arrangements are mutually advantageous for both the foreign partner and the host country, and that they will facilitate industrial fisheries development. Consequently, it is conventionally argued for these reasons joint ventures should be actively promoted.

The European Community's Centre for Industrial Development summarizes conventional wisdom on joint ventures, noting that they are "An efficient and equitable way of transferring technology and investment capital".[3] The promotion of fisheries joint ventures is often pursued under ACP-EEC fisheries access agreements for EEC fleets. Both ACP countries and the EEC agree that the encouragement of fisheries joint ventures "...could be an important step in the development of ACP fisheries.".[4]

While emphasizing the merits of joint ventures, disadvantages are often discounted on the grounds that the advantages of these cooperative undertakings out-weight the negative aspects. Problems associated with the inability of government to adequately manage and monitor joint ventures in the face of highly competitive and aggressive partners, and transfer pricing and other manipulative practices by the foreign partner, are largely ignored or played-down.

CONSIDERATIONS RELATING TO JOINT VENTURES

Definition

The term *joint venture* is often broadly and imprecisely defined and used. Some prominent joint venture researchers defined a joint venture as "...an association of two or more partners who share risks and benefits of a joint commercial, or in some cases, non-profit use and development of marine living resources."[5] However, for this paper joint ventures are more narrowly defined to exclude normal private sector investment, which is admissible under the above definition. In a more conventional use of the term, joint ventures involve active participation by government as an investment partner, along with domestic or foreign private investors. The adoption of this definition of joint ventures reduces the number of fisheries investment that qualify for consideration.

The essential distinction between a fisheries joint venture and other forms of investment in the fisheries sector is neither the *structure of the venture* nor *the nature of its activities*. Rather the distinction lies in the fact that the government is involved financially in the venture, assuming risk according to its level of financial exposure and receiving income in line with its shareholding and the venture's profitability. Calls on shareholders funds or the need to guarantee loan funds to expand or modify a venture after it is operational is also determined by the shareholdings of partners. Both calls on funds and loan guarantees increase the financial exposure of partners in the venture.

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[3] Centre for Industrial Development. 1983. *"Joint ventures". The Courier*. No.79. pp.53-56.

[4] European Community. 1989. *"ACP-EEC fisheries agreements will continue to develop". The Courier*. No.117. pp. 10-11.

[5] Kaczynski, V.M., A. Klein and F. Hasegawa. 1984. *"Foreign investment in international fishery ventures in Asia and the Pacific". Infofish Marketing Digest*. No.3. pp. 13-16.

Objectives and rationale

Although not always recognized from the outset, the government and the private sector partners entering into a fisheries joint venture have *incongruent goals* and for this reason they seek different results from the venture. While a joint venture may appear initially to be a marriage of convenience, after the honeymoon is over, the arrangement might seem to be little more than an ill-matched liaison.

Differences in expectations by the venture's partners may lead to a strained relationship which, in the extreme, can result in its break-down and abandonment. Under these circumstances, the government is likely to be more vulnerable to financial loss than its partners because of the government's weaker commercial and industry position.

In opting to participate in a fisheries joint venture government normally becomes involved for one of the following reasons. However, the reasons prompting public investment might not be mutually exclusive, and government may concurrently seek to satisfy more than one objective. Governments will entertain participation in commercial ventures to:

- protect the national interest by ensuring that a nationally important resource is developed in accordance with national priorities;
- attempt to generate additional economic benefits through the employment of nationals, export income and domestic revenue for government;
- influence the geographical location of industry (e.g. decentralization of industry to particular regions or areas of the country);
- provide a degree of confidence (i.e. investment comfort) to foreign investors so that they will be willing to invest in a venture, and
- facilitate the flow of capital and know-how, including management and marketing skills, to the fishing industry.

While not questioning the validity of government perceptions with respect to investment in fisheries joint ventures, the rationale for such involvement might be misconceived.[6] Government has a wide range of statutory and discretionary instruments of a fiscal and non-financial nature available and these instruments might be more properly used to achieve objectives relating to the protection of nationally important industries, the generation of economic benefits, and the location of industry. Moreover, a package of financial incentives might be used more gainfully to support ventures that are financially marginal and that would not be undertaken without direct public sector support. The cost to government through revenue foregone would be lower and more predictable than the risk and financial exposure associated with direct investment in a marginal fisheries project.

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[6] Government investment in a fisheries venture can be justified if such an investment is in the national interest but it is not possible to attract private sector participation. There are instances where governments have been required to undertake investment of this type because of the inability to attract private investors.

Governments wanting to facilitate the flow of capital and technical know-how for fisheries development into their countries from abroad can induce this flow by other, more direct and efficient, means. All too often joint ventures do not result in a significant capital inflow (e.g. some or indeed, most capital, might be sourced locally thereby drying up funds for other investment purposes in the country) and joint-venture partners are often reluctant to indiscriminately transfer technical know-how. To transfer technical knowledge, without strings attached, would erode their corporate influence in the venture, possibly inducing governments to *go it alone* or to look for other partners (e.g. substitute foreign or domestic partners) once they had acquired the technology.

With respect to management and marketing skills, there is no magic involved with these facets of the fishing industry. While ventures are critically dependent on competent management and marketing expertise for their success, management and marketing skills can be purchased on a contractual basis (e.g. through technical service agreements) so that it is not necessary to engage fishing or processing companies as partners in the venture in order to obtain these skills.

The primary objective of the private sector partners in fisheries joint ventures is to maximize financial returns for the venture or the parent company. The strategy adopted to achieve this goal varies from investor to investor, but it frequently involves *milking* (i.e. charging excessive management and marketing fees) the venture in the interest of enhancing returns for the parent, usually foreign, company.[7] Under these circumstances government is denied legitimate taxation revenue and investment income from the venture. This means that the venture's national economic impact is less than it should be.

In the fisheries sector it is common for foreign corporate investors to enter into joint-venture arrangements in order to secure raw material supplies for processing at foreign facilities owned by the parent or affiliate company. Under these circumstances the foreign partners might regard this objective as their primary reason for their involvement in a joint venture and be prepared to sacrifice the financial well-being of the venture in return for secure raw material access.[8]

In addition to securing raw material for processing, prominent international fishing and processing corporations sometimes pursue investment in joint ventures in order to maintain market leadership or to thwart industry competition. If the maintenance of leadership is an objective, it is likely to take precedence over the venture's financial considerations. Similarly, investment in a joint venture might be instigated to impede industry development by a competitor.[9]

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[7] Joint venture *milking* is possible through a range of measures relating to transfer pricing. For a discussion of these and related practices in Papua New Guinea see Papua New Guinea Law Reform Commission. 1980. Transfer pricing manipulations in Papua New Guinea. *Occasional Paper No. 12*. Port Moresby. 71p., and Vonole, R. 1986. Transfer pricing and trade malpractices in the Papua New Guinea prawn fishery. Department of Fisheries and Marine Resources. Port Moresby. Unpublished mimeo report. 23p.

[8] Although not involving a joint venture company, Star-Kist (Papua New Guinea) Pty Ltd was prepared to sacrifice profit in order to secure supplies of pole-and-line caught fish for its parent's canneries in the United States (Terminal Island in California, American Samoa and Puerto Rico). Star-Kist operated in Papua New Guinea from 1972 to 1982, and over that period declared a profit on its operations in only two financial years. Similarly, Unicord, the large Thai tuna processing company that negotiated with the Papua New Guinea government also wanted to secure supplies of tuna from Papua New Guinea for processing at its facilities in Thailand. Unicord was quite open about this objective and was prepared to invest in fleet development and processing facilities in Papua New Guinea in return for raw material supplies.

Government may sometimes justify investment in a fisheries joint venture on the grounds that it will privatize its shareholding after the venture is established and operational. However, while privatization is now considered highly desirable and necessary in the interests of efficiency by many governments in both developing and developed countries, it is frequently difficult for government to divest itself of its shareholding in a fisheries joint venture. Often there is simply a reluctance for government to *let go* of its involvement, and even if it is able to do so, it usually must have the concurrence of the other partners in the venture. Moreover, it may be difficult to obtain that agreement if transfer of ownership clauses are not clearly provided for in the joint-venture agreement.

In practice since both political and economic considerations impinge on decisions concerning the privatization of publicly held assets, they are often not disposed of despite best intentions to do so. As a general rule fisheries joint ventures remain joint ventures until the private sector partners decide to withdraw, at which time the venture collapses or government assumes total ownership. To attempt to justify public sector investment in fisheries joint ventures on the grounds that government participation is an immediate step in the process towards privatization, is rather unrealistic.

Agreements

Agreements setting up joint ventures can be drafted in a variety of ways. However, in order to ensure that agreements are easily enforceable at law, they should be precise, uncluttered and unambiguous, with minimum scope for interpretation.

Frequently, prospective joint venture partners will want all aspects relating to the establishment and operation of a venture to be contained in a single agreement. While the partners argue that this is for simplicity and so that operations of the venture will be facilitated, it is primarily designed to give them protection in the event that recourse to litigation is necessary.

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[9] Between 1974 and 1982 the U.S. multinational company, and then the largest tuna processing company in the world, Star-Kist (USA) Inc. negotiated with the Papua New Guinea government and the International Finance Corporation (IFC), the commercial arm of the World Bank, to establish a joint venture tuna fishing and processing company in Papua New Guinea. After many years of negotiation and project recasting it became apparent that Star-Kist had no intention of investing in a joint-venture company in Papua New Guinea. Star-Kist's real objective, which did not become apparent until about 1981, was primarily to engage the government and the IFC in on-going negotiations.

In return for its alleged commitment to develop tuna processing in Papua New Guinea, Star-Kist insisted that it have exclusive rights to process fish in the country. In good faith this undertaking was given by the government but it was used as a tactic to prevent discussion with other parties interested in developing tuna processing in the country. The development and decline of Papua New Guinea's Domestic tuna industry has been analyzed in Doulman, David J. 1984. *The Development Papua New Guinea's Domestic Tuna Industry: a Proposal for Future Management*. Ph.D. dissertation. James Cook University. Townsville. 536 p.

According to Lawson, R. M. and E. A. Kwei. 1974. *African entrepreneurship and economic growth: A case study of the fishing industry in Ghana*. Ghana University Press. Accra. 262 p., Star-Kist adopted a similar approach with its involvement in the tuna fishery in Ghana in the 1960s as it did with Papua New Guinea in the 1970s.

A more appropriate way of structuring a fisheries joint venture is for a set of agreements to be drafted. As a minimum there should be a head agreement establishing the venture, supplemented by management, marketing and supply agreements. It is in these three areas that opportunities for transfer pricing and related practices are most pronounced.[10] To ensure that the government maintains its advantage in joint-venture negotiations, it should insist that the agreements drafted by its own lawyers be used as the working drafts for negotiation and not the agreements prepared and tabled by the joint-venture partners.

Monitoring

If a joint venture is established, it is essential that government be well placed to properly supervise activities associated with the venture in order to protect its investment. What is required is constant and competent monitoring by government appointed directors who have an in-depth knowledge of the operations and scope of activities of the joint-venture partners, the industry itself and familiarity with the day-to-day operations of the venture. Unfortunately, governments are not normally in a position to provide this type of supervision.

Civil servants are usually appointed to joint venture boards because of the positions they hold within the public service and not because of the commercial skills they possess. While an individual might be highly skilled and trained for the public sector, this training rarely provides the commercial skills necessary for participation in corporate decisions relating in the private sector.

A possible solution to the problem relating to government representation on joint venture boards is to hire accounting firms to review periodically the venture's financial statements, along with the retention of experts, possibly on a contractual basis, who are capable of providing industry advice. The use of consultants to assist with the monitoring the operations of a venture is not cheap, but it will assist with the protection of the government's investment. Furthermore, such an approach provides an incentive for the other private sector partners in the venture to minimize malpractice.

Conflict of interest

As a partner in a fisheries joint venture, government can experience conflict of interest at two levels.

Firstly, as custodian of the nation's fisheries resources, the government is obliged to ensure that wise and rational fisheries conservation and management practices are followed. In a situation where government is a shareholder in a joint venture fishing company, it might be reluctant to implement conservation and management measures if they are inconsistent with the commercial interests of the venture. However, failure to implement such measures could result in resource overexploitation or economic inefficiency in the industry. Very often the private sector partners in the joint venture lobby the government not to take the required conservation and management decisions. This can lead to conflict among civil servants (e.g. fisheries managers and treasury officials).

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[10] For a discussion of these different agreements as they refer to the fishing industry see Doulman, David J. 1989. A critical review of some aspects of fisheries joint ventures. In Campbell H., K. Menz, and G. Waugh (eds). *The economics of fishery management in the Pacific Islands region*. Australian Centre for International Agricultural Research. Canberra. pp. 29-36.

A second source of conflict of interest for government can arise from its being a shareholder in a venture, and at the same time an enforcer of national laws. In some instances governments might be placed in the difficult situation of having to make decisions that could disadvantage its venture. Pressure could be exerted on the government by the joint venture partners not to take such decisions, even though failure to do so would be against the national interest.

Alternative approaches

In principle, it is preferable to encourage private sector development of the fishing and processing industry. The industry is inherently high risk, competitive and dynamic. In most cases governments do not have the commercial resources necessary to stay abreast of industry developments, even if they have a financial stake in it. Consequently, in the interests of economic efficiency, of not absorbing scarce public funds, and of ensuring that fisheries management and national laws are not compromised, governments should carefully assess options concerning investment in fisheries joint ventures.

Governments have a range of fiscal policy instruments and national laws that can quickly and efficiently employed to promote industry development, to protect the national interest and to secure financial and other benefits from their fisheries resources. These instruments and laws should be used in preference to direct public sector investment because government participation in fisheries ventures is unlikely to realize government objectives.

Despite the merits of fostering strong private sector participation in the fishing industry, it is recognized that there might be instances where it is politically necessary for government to consider participation in a joint venture. Under these circumstances it might be prudent, in view of the financial difficulties associated with conventionally structured joint ventures, to assess the potential and advantages of other types of joint venture structures. Other industries such as the petroleum industry have resorted to alternative arrangements in an attempt to overcome trade and marketing rigidities and malpractices.

Three alternatives to the conventionally structured fisheries joint venture might be realistically considered. These alternatives include:

- *production sharing*. Under this type of arrangement the partners share in the output of the venture. This gives the government a range of marketing options, including the option to market independently if this is considered appropriate.

- *fade out agreements*. With this arrangement ownership can be progressively transferred to the government at a predetermined rate with a view to minimizing government risk and financial exposure (e.g. majority ownership in the venture might be transferred at *investment recovery* or on *debt retirement*), and

- *an equity tax conversion scheme*. This arrangement involves trading tax (e.g. export tax) for equity in a venture. For example, in one case in the mining industry in the South Pacific it is proposed that there be an equity tax conversion scheme whereby 1 percent export tax could be converted to 5 percent equity in the mining venture. By foregoing taxation revenue the government could take up an equity position in the venture.

Each of these three options involve government risk and financial exposure as the government would maintain an equity position. However, in the first option this type of arrangement might significantly assist in addressing problems associated with transfer pricing and related trade malpractice; the second option will enable government to assume equity in a venture with a minimum of up-front financial burden while limiting its exposure in the initial phases of the venture, while the third option has a real financial cost to government if the conversion is activated. However, with this latter option the assumption of equity and the resulting financial exposure can be delayed by government if it so desires.

CONCLUSION

Conventionally structured fisheries joint ventures have been used in many countries to promote fisheries development. However, given the practical difficulties associated with monitoring ventures, it is seriously questioned whether they are the most efficient and financially sound vehicle to use. Inevitably, because of their lack of commercial and industry expertise, government partners in fisheries joint ventures are weaker than their private sector counterparts. With different objectives and reasons for participating in ventures to their private sector partners, governments often find that their goals are not achieved and that they are also short changed. What must be fundamentally realized is that for government, the profit centre for the venture is in-country, while for the private partners it is likely to be a centre outside the country--either the parent company or an affiliate company.

If it is necessary to consider industrial-scale fisheries development through a cooperative joint-venture arrangement, it is proposed that alternative joint-venture structures be investigated. To date these alternative types of ventures have not been widely used in the fishing industry, though they are well known in other resource-based industries such as the petroleum and mining industries.

To ensure that they receive a fair share of the benefits from the exploitation of national fisheries resources, governments should consider vigorous promotion of private sector development. In pursuing this approach, the public interest will be protected and government will not be placed in the position where it might have to consider substantial financial exposure and related risk, and compromise, e.g. sound fisheries management and the enforcement of national laws. Overall, this approach should be significantly more efficient for the long-term development and management of fisheries resources in developing countries.

VALUE-ADDED PROCESSING AND INNOVATIVE MARKETING OF FISH AND FISHERY PRODUCTS

by

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INTRODUCTION

With the increase in general wealth and purchasing power of consumers in many countries, it has been found that the contribution of fisheries to the economy of a country is far greater than the value of the catch at the place of landing because, with increasing specialization in the economic process, additional activities and resources flow into the products before they reach the final consumer. This additional value is reflected in the price the consumer pays at the retail level. Depending on the product and market situation, the additional value can be a multiplier of up to five of the landed value of the fish, e.g., if the original raw material content in the final product represents 20% of the retail price. Attention should be paid to the possibility that such high marketing margins can hide low efficiency and waste in the marketing system. It is, therefore, necessary to analyze which transformation and marketing operations and processes correspond with the specific margins and costs in the transformation and marketing process. The basic consideration remains, however, that the value added in processing results in costs and these costs need to be recovered if the operation is to be economically feasible. This, in turn, requires consumers to have sufficient purchasing power in the market to make the recovery possible.

The second term in the heading of this paper is innovative marketing. Unlike value-added processing which, in almost all cases, means a cost increase, innovative marketing can in fact result in efficiency gains and lead to cost reductions. Nevertheless, there are examples that the innovation means additional use of resources, cost increments and higher prices at the final product level. An example may help to illustrate this connection: Supermarkets are generally considered a very efficient way of food marketing and compared to the itinerant retailer may, at first sight, show a high cost alternative. A comparison between the services rendered and the product offered by these two systems would indicate a relatively small range of service and assortment by the street vendor and probably a relatively high margin, because due to small turnover he/she has to apply a high margin per unit of sale in order to achieve the income needed to make a living. The analysis of marketing costs and margins is both necessary and difficult, since it may be hard to obtain information on the ways margins are calculated by traders which can be quite varied. Needless to emphasize that the introduction of innovative marketing approaches for fishery products should be based on thorough investigations of the costs involved and the benefits which can be derived from their application.

SELECTION OF RAW MATERIALS SUITABLE FOR VALUE-ADDED PROCESSING

The catches reported for the FAO statistical area 31, the Western Central Atlantic, centred on the Caribbean and Central American states, include a diverse array of fisheries and harvested fish species. Some 147 species or species groups are recorded in the FAO statistics as having been caught in these waters between 1950 and 1994. However, some of the species groups are shown as "marine molluscs: not identified" or "finfishes: not identified" which make it difficult to assess the potential for species which could be used in value-adding operations. For 1994, the FAO statistics for the Caribbean islands show a total landing of 103 000 MT, of which 82 000 MT were marine finfish, 20 000 MT crustaceans and 1 000 MT molluscs. The catches reported for the region are dominated by US landings and the following remarks about the stock situation is not strictly limited to the Caribbean islands only.

It is said that there is insufficient information to assess the status of stocks in the region, but there is general concern for, among other finfish stocks, those of sharks and rays, for which landings have increased substantially in recent years. Many species of reef fish have been reported as fully or overexploited, including the Nassau grouper and jewfish. The larger off-shore pelagic fish with oceanic distribution, such as billfishes, tunas and swordfish have been assessed by the International Commission for Atlantic Tunas (ICCAT) and most are considered to be fully or overexploited. Catches of mackerel species are predominant in coastal pelagic landings, and species such as blackfin tuna and common dolphinfish are also common. Landings have shown steady increases over the last decade but the status of the stocks is unknown.

Fisheries for small pelagics are largely based on clupeoids, particularly round sardinella. Flyingfish makes up only a small proportion of landings of small pelagics, but it is important to the South Eastern Caribbean states. Only two countries have recorded catches of this species on FAO FISHSTAT (Barbados and Granada), but at least seven island states have fisheries for the species and there is considerable interest in increasing exploitation. The available data indicate a highly variable resource but there are no indications of its status and some form of assessment is urgently required.

The fisheries for crustaceans in the area are dominated by those for the Caribbean spiny lobster and penaeid shrimps, the latter particularly from the Guyanas/Brazil sub-region. Landings of the spiny lobster have increased fairly consistently since 1950, with the fishery dominated by Cuba and the Bahamas. While landings in the Bahamas have increased in recent years, those from Cuba have declined; however, management measures have shown a positive reaction. The regional resource is generally considered over-exploited in many countries and a more effective management strategy is required for the region. While there have been no intense assessments of the major shrimp stocks, it is generally believed that they are not over-exploited and landings have tended to fluctuate around 15 000 MT.

The queen conch strombus gigas fishery is cause for some concern, and the stock is considered to be over-exploited in most countries of the area. The species has been listed on Appendix II of CITES.

Reports on the status of stocks in the Caribbean area do not indicate great potential for expansion but there are landings of relatively high-value fish, such as the large pelagics and shrimp, which could provide the raw material for value-added processing. An appraisal of this potential should be made on a country by country basis.

ADDING VALUE IN FISH PROCESSING

The product, as it reaches the consumer is a combination of the material value and the costs corresponding to the services provided and resources used in its presentation at the point of retail sale. This may include and distinguish products by transport cost, packaging, degree of processing, share of edible parts and additional ingredients and in the form of the presentation itself.

Transport

In modern distribution technology, a wide variety of measures can be found which aim at the efficient accomplishment of this core marketing function. The variables are to increase the speed of transportation, e.g., by changing from sea to air transport; to reduce storage time by "just-in-time" delivery; to establish nodal links by the proper organization of a transport chain using different means such as road - air - road or containerized road - sea - road systems. What has been said earlier about the suitability of any mode, it will depend on the cost and the purchasing power which must be available to cover these costs. This is perhaps best demonstrated in the example of air transport. This mode was hardly used for fishery products 20 years ago when the International Civil Aviation Organization (ICAO) commissioned several studies on fish transport by air, aiming at the time to identify the particular advantages of air transport for perishable goods from areas which had difficulty in reaching markets by road or sea-based transportation systems, e.g., in Africa south of the Sahara. The bluefin tuna flown to the Tokyo market from all over the world illustrates this change, and also products which have a lower unit value are now regularly transported by air, e.g., from the Caribbean and Central American countries to Miami. We have no precise information, but air transport is significant. Therefore, the transport of fresh fishery products on ice to North American, European or Japanese markets can be considered a value-added product.

Packaging

The main purpose of packaging is to protect the product and to maintain its useful properties for the consumer. Increasingly, packaging is being used to support the product's appeal to clients and to induce purchase decisions. Both functions require inputs and as such cause costs, but overall they make the product more valuable than the original raw material. The sale of products in final consumer packs will depend on the technical capability of the processing plant and the availability of the packaging material required by the import market. The size or volume of the pack is another important variable and it is worth investigating whether a potential exists for larger packs, e.g., for the institutional and catering sector. Such preparations may be easier to handle.

Unfortunately, packaging also generates waste and some importing countries have specific regulations with regard to packaging and imports of packaged products. This, like other specifications of the material itself or the printing, colour or obligatory information to be shown on the pack, can create problems for the exporter who wishes to distinguish his products by improved packaging. The value added through packaging may be limited overall, but a presentation which can avoid repackaging in the importing country will constitute progress and should improve the economic performance.

Eliminating dead weights

Processing proper of fishery products is usually only seen in the removal of non-edible parts and mechanical changes to the raw material as well as the addition of substances which may change texture and taste. These are the wide range of headed and gutted, filleted, minced, canned, smoked, dried (a special case, nothing may be added but the process may consist of nothing more than reducing the moisture content), salted, frozen and powdered products which, of course, could have gone through a combination of these processes. A relatively recent development has been the success of exporting tuna loins to canning plants in market countries which enables a reduction of the transport cost because inedible parts stay behind and the importing company can keep the presentation under its own control for form and quality. Attempts to export tuna loins in the '70s were not successful because the control of the canning raw material had proven to be too unstable. Given the increasing availability of technology in developing countries and the stronger demand and purchasing power for products having undergone a higher degree of processing, it can be assumed that value additions in developing countries will become more common over time.

New presentations

With the expansion of the product assortment emanating from the fisheries sector, the use of fishery products has also changed its nature. Lifestyle changes have had an impact and provided opportunities for new presentations of fishery products to consumers. Such changes include the restaurant boom, particularly the fast-food trade; the use of fish in outdoor preparations, e.g., barbecues; and, in the animal sector, the use of fishmeal in aquaculture and canned pet food. FAO and the Regional Fish Marketing Services, established by FAO in various parts of the world, have tested the receptiveness of importers to these new product approaches in trade fairs, mainly in Europe, with encouraging results. A niche market tested for a product like smoked Spanish/king mackerel in slices was the airline industry with meals for passenger flights. This is an example which could be assigned to the next section of this paper.

INNOVATIVE MARKETING

The four P-approach in marketing

The long established general rule of marketing compresses the state of the art by saying that for market success the right Product should be at the right Price in the right Place and be Promoted. No doubt, if the right definition of the qualification "right" can be achieved, market success is inevitable, because promotion should not be difficult in this case. The rule is, however, useful because it provides in a nutshell the most important conditions to be met for successful marketing, also for fishery products:

- We have to have a product (or be able to offer a service) and it has to be the right one, i.e., for which there is a demand;
- The price has to be right, so that there is adequate purchasing power to meet consumer demand;

- The product has to be in the right place, where consumers can give effect to their purchasing inclination and decision;
- Promotion or at least information and communication are necessary to inform consumers about the purchase opportunity.

We have to leave the subject with these rather general remarks. As you can imagine, the art of marketing has made considerable academic progress, models have been developed and methodologies refined. Despite all the efforts made, the insufficient knowledge about the variables and their interrelationships remains a major obstacle.

Market intelligence

In recognition of the need to know more about the requirements of foreign markets for fishery products, FAO has built up a strong system of Regional Fish Marketing information Services. The acronyms INFOPESCA and INFOFISH are probably known to most of you. However, although the information collected and disseminated by these services for the benefit of the exporters of fishery products is valuable and appreciated, it is not enough for a complete analysis of the opportunities, chances and risks involved in expanding value-added processing and to introduce innovative marketing approaches. There has to be further and special effort which needs to be country and product specific. The regional services may help in these efforts but most of the homework has to be done by the company concerned. The information requirements are not limited to product descriptions and prices, transport costs and payment procedures, but should cover all aspects of the successful export marketing operation. In many cases personal contact will be helpful, if not essential; particularly, if relatively small volumes are to be shipped and perhaps not at regular intervals.

Gathering, collation and analysis of data and information costs time and financial resources and, in addition, carries a margin of uncertainty or error. Information also has the unfortunate characteristic of becoming out-of-date and obsolete, and can be damaging if it no longer corresponds to reality. Despite these constraints, it needs to be stressed that good information is essential for doing business and for doing it well. Shipping valuable products to black holes hoping for the best would not be a strategy for sustained success. It was exactly for this reason that FAO created the network of regional services in the mid-seventies. It started with a preparatory phase which was later to become known as INFOPESCA and commenced operations on 1 July 1975 in Panama. The Latin American region had been selected as the first priority because the export potential was considered to be the biggest and it was closest to the most important import market at that time, the United States. In the initial phase of INFOPESCA, a number of studies were carried out which were of direct interest to the fisheries in the Caribbean countries. One concerned the possibility of pooling exports from Caribbean islands to the US and Europe, and another was the possibility of importing raw material for further processing in the region aiming at the substitution of imported fishery products such as salted fish. However, financing for implementation of the schemes proposed did not materialize.

TRENDS IN CONSUMER MARKETS

During the last 20 years, markets for fishery products in North America, Europe and Japan have undergone very significant structural changes. Supermarkets and chain stores have replaced the traditional fish specialist shops and there has been an increasing penetration of value-added products. In some countries supermarkets may offer individually pre-packed fresh fish and sometimes also complete meals, fully cooked, semi-cooked or raw, mostly under some kind of brand name, whereas fresh fish is still sold unbranded in most markets. A lot of fresh and frozen fish is purchased by caterers and in some markets institutional buyers demand individually packed, raw or semi-cooked products where the size of the portion is adapted to the clients' needs.

The structure of the processing industry has changed in response to these changes in demand. Large, secondary processors operating nationally or internationally buy raw material (frozen blocks, for example) and semi-prepared products from primary, often smaller, processors, or from importers. In the primary processing industry, in some countries there is a trend towards horizontal integration, i.e., secondary processors being supplied by their own primary processing plants and their own vessels. Where companies, which originally dealt only with fish have been taken over by multinational food companies, fish is just one among many commodities in the assortment offered. Supermarkets and chain stores do not usually undertake any processing themselves and buy fresh fish from primary processors or the agents or sales offices of the secondary processors.

Historical analysis shows that the pattern of fish consumption may have lagged internationally according to the degree of processing, with European and other Western-style markets taking the lead in the changes over time. The sequence would then be seen as starting with the traditional raw fish distribution without or with little ice (or alternatively in traditional cured forms), then iced fish in the 1920s, whole frozen or frozen blocks in the 1950s and, more recently, frozen fishfingers and prepared meals. These structural changes in the marketing of fishery products have had a profound effect on the awareness of, and attitudes towards, quality assurance of fishery products. Chain stores were already used to buying foods to quality specifications when they moved into the sale of fishery products. They found that the quality control procedures were often weak in the fish processing units and therefore instituted company policies for fishery products similar to those already in place for other foods. With their commercial power, they could force the industry to introduce strict quality control procedures. Today, the secondary processors normally provide the primary processors with detailed instructions for processing operations and product quality. Often the secondary processor's inspectors would visit the primary processing plant. The importance which quality assurance has accrued today, has led to large investments at the primary processors level in improved machinery for cutting and grading and for technically better cold-storage facilities. It has been argued that this greater emphasis has been pushed by the marketing people. In fact, it has more or less been imposed by them on the production side. The same trend can be noticed now in some developing countries where pressure to improve quality is coming from the buyers in the importing countries.

The international fishery industries are under pressure to pay increased attention to product quality. This pressure comes from different directions:

- The demands of the market place for different types of products and higher quality;
- The need to trade on the basis of quality in the face of stiff international competition
- Increased consumer and public awareness of potential health hazards in fishery products;
- Industry consolidation, vertical integration and foreign investment;
- The trend towards structural efficiency in processing and distribution with implications for efficient work practices, multi-skills and higher skill levels.

CONCLUSION: REDUCING MARKETING RISKS

This brief presentation on value-added processing and innovative marketing is intended to stimulate thinking about meeting the challenges of today's markets for fishery products, both domestically and internationally. We have seen that opportunities have been increasing, but that concomitantly the challenges and therefore the risks of failure also increase. The path to be followed would seem to be the one where opportunities are realized and are not frustrated by the risks becoming obstacles. Information and knowledge, financial resources and, of course, the product are the essential ingredients for elaborating and implementing the strategy for fishery commodity development. With efficiency and competition economic and specifically market forces will increasingly become the driving factors in fisheries.

MARKETING AND CREDIT ARRANGEMENTS FOR AQUACULTURE PRODUCTS IN JAMAICA

by

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INTRODUCTION

Jamaica has had a long history of eating fish and have been major importers of canned, salted and pickled products for many years. The local fisheries cannot adequately supply the needs of the population as well as the growing tourism sector and the marine catch has been stagnant for the last fifteen years. Development of Aquaculture was seen as a means of augmenting domestic supplies of protein at low cost.

The industry has being growing since 1976 when it was introduced as a national project under the Ministry of Agriculture. The industry has grown from production of 2 200 kg in 1977 to over 2 700 000 kg in 1988. There have been setbacks, such as the effect of Hurricane Gilbert in late 1988 which destroyed the Rio Cobre Dam, the source of irrigation water for the major producing area in the country. Production since 1994 has surpassed 1988 levels and now currently stands at 4 091 000 kg for 1995. It is projected that production will be the same for 1996.

NEED FOR MARKETING STRATEGY

This growth resulted in a number of strategies being developed over the years to market aquaculture products and to develop consistency of supply. One of the avenues chosen was to aggressively look at the export market as a means of earning foreign exchange which was a necessary commodity for many of the larger operations which import some of the inputs for both production and processing. The Jamaican experience has been in some cases one of trial and error as in many instances there were no examples present in the Caribbean to compare and learn from. Other countries who are embarking on similar programmes can learn some lessons from our experience and possibly develop programme based on information taken from similar circumstances.

In the early stages of the industry, the main thrust was to develop small subsistence or small commercial production facilities, hence the two Government of Jamaica (GOJ)/United States Agency for International Development (USAID) projects running from 1976 to 1983 had as the main focus, number of ponds constructed, number of farmers and total area in ponds under culture. An assumption of the projects had been that focus would be on provision of protein at the subsistence level so the issue of having a discreet marketing component to facilitate disposal of large quantities of fish did not require project funding.

This however, was not to be as most persons were not interested in subsistence level activities but wanted an item which could be sold for profit.

The need for attention to be paid to marketing arose in the early 1980's as production increased above the levels that could be comfortably absorbed by the Agricultural Marketing Corporation (AMC) which ran a network of islandwide outlets for agricultural produce. The problem was highlighted by the fact that the tilapia being cultured, *Tilapia (Oreochromis) mossambica(us)* had a negative image and was described as having a muddy taste, ugly with a long mouth, skinny body and with too many bones. Resistance from consumers was widespread and the middle classes were either unfamiliar with the fish or thought it unacceptable to buy freshwater fish over marine fish.

HISTORY OF MARKETING TILAPIA

The first efforts at assisting farmers began as part of the extension service that the Inland Fisheries Unit (IFU) decided it had to provide, as there was no point in putting farmers into production and then have no channels for disposal of the fish. A marketing officer was appointed and assigned the task of finding sales for fish based on a production schedule compiled by the Extension Section. Farmers would be assisted in the harvesting and transportation of fish as many had no vehicles or hauling tanks.

Local fish vendors in the Kingston Metropolitan Region were approached to try to sell the product along with their regular supplies of marine fish. There was resistance initially, but the annual shortage at Easter assisted in creating some demand for tilapia. Based partially on the complaints, a programme to change the species to *Tilapia (Oreochromis) niliotica(us)* which was more pleasing in appearance and had a higher body to head ratio was started in 1980. This had a positive impact along with the decrease in complaints of off-flavour.

The Inland Fisheries Unit not only had to assist the farmers initially but had to provide transportation for some of the larger buyers into Kingston. As quantities became larger, the necessity to have ice on hand to preserve fish that were stressed and would not survive being held in a tank all day became a part of the selling day ritual. People began identifying the Unit's office as a place for getting fresh fish at lower prices than marine fish on specific days of the week and orders would be booked with the Marketing Officer weekly. Young men in the area saw an opportunity to make money and started offering gutting and scaling services to clients at the site. This proved to be popular with housewives and has continued to be a part of any fish selling location.

The effort to get people to like freshwater fish was not left up to just getting sales but a programme of introducing the product on a wide scale was undertaken. This took the form of taste tests done at government functions where a variety of recipes were tried on guests. Recipe booklets were designed and given for free to interested persons, cooking demonstrations were held on television and presentations made on radio. When the very large farms came into being in 1982-83 an additional boost was given to the programme as marketing promotions started in supermarkets and a new product, freshwater shrimp, *Macrobrachium rosenbergii* was added. Introduction of the red hybrid tilapia was a further effort to get customer acceptance as its similarity to marine snapper, a favourite of Jamaicans put it in a more favoured position.

Different entities sought to get their own strain of red fish and the industry experienced further specialization with the development of hatcheries dedicated to the production of all male, red fingerlings. During this phase of development the Inland Fisheries Unit which played such a prominent role in the development of the industry lost its project status and as a result, lost funding, trained staff and many of its vehicles fell into disrepair. The demand for fingerlings had increased to such an extent that the Unit had a backlog of several weeks.

This side of the business saw the emergence of four major producers of fingerlings, the two large private farms supplied their own needs and sold excess to the public, while Surrey Hatcheries sold all its production. Even with this, some farms still maintained capability to produce their own requirements as the demand was still greater than the supply. The marketing effort required for this end of the business was therefore not as strenuous as for the end product, but work had to be done to maintain customer loyalty as there was competition over price, guaranteed percentage males in each batch, uniformity of colour and survival rates immediately after delivery. At present, the industry is seeing a shortage of fingerlings as there are now only two large suppliers and some of the farms which were out of production as a result of the hurricane have been put back in operation as well as new ponds are being constructed.

The marketing thrust at this time was to develop a recognition for freshwater products in the minds of consumers that cultured products were healthy, pleasant tasting, were consistently available, had uniformity of size and came in convenient product forms. Problems encountered with fish being caught with cancerous tumours and other disigurations in the Great Lakes and other regions gave credence to the quality claims of aquaculture producers.

In 1986, Government as part of its modernization programme and focus on large scale farming for export, launched Aquaculture as one of its priority areas under the AGRO 21 banner. Other species suitable for culture along with tilapia were promoted. Some of these fish had been introduced into the island from the late 1970's, including four species of carp. The colossoma, *Colossoma macropomum* was introduced later in 1984. Smaller quantities of these fish became available from the larger farms and were sold at lower prices to develop consumer interest.
The two largest farms in the early 1980's embarked on individual marketing programmes geared both to export and the local hotel industry. At that time, the Jamaica Broilers Group emphasized shrimp production, while the Israeli group focused on production of tilapia with shrimp being a secondary product. After three years, shrimp was removed from the farm due to its incompatibility with the highly intensive tilapia production system. The Broilers Group also stopped producing shrimp and switched to tilapia in 1988 due to production and processing problems. This was restarted in 1990 and now small quantities are produced for the local market. Product is sold in whole frozen form and damaged animals as mixed sized tails. There is no retailing in supermarkets as handling is poor, resulting in consumer complaints and loss of product. Restaurants are the main buyers with retail sales done at the company's two retail outlets.

Processing and freezing capabilities were needed to handle the volume of product and to deal with the variety of value added items which were being ordered. Jamaican Aqualapia Ltd. secured markets for sales of tilapia fillet to the Publix chain of Supermarkets in Florida. By 1989, the product line included, skinless single fillet, skinned single and double with the belly flap, gutted, gutted and scaled, headless and deboned whole fish, and steaks for carp and colossoma.

It was difficult to get hotels to accept the fish but a number of factors worked in its favour. Many hotels imported fish or had specific seafood suppliers from which they purchased when available. The local suppliers did not offer filleted product so hotels had to do this for themselves or depend on imports. The offer of a consistent supply of fresh product, wrapped in 454 gm packs delivered weekly and payable in local currency eventually had the effect of many hotels placing weekly orders with both companies. At peak, hotel sales stood at approximately 2 300 kg of fillet weekly. A few also bought gutted and scaled fish for their employees' meals.

The marketing push has continued to be export driven and even though Jamaican Aqualapia no longer exists and whose facilities have been leased by the Jamaica Broilers Group, other entities have been involved in export of small quantities of product to Switzerland and some of the Caribbean islands. It has been recognized that competition in the tilapia market is steadily increasing particularly in the United States where production increased to approximately 7.5 million kg in 1994 up from 4.1 million kg in 1992. Production is also increasing in the rest of the world as Taiwan, Indonesia, El Salvador, Colombia, Costa Rica, Philippines and China continues to improve their production systems.

CONTRACT FARMING

In order to exploit the export market more effectively, Jamaica Broilers embarked on a contract farming scheme similar to their poultry operation. This is set up to provide fingerlings, feed and market for the fish at harvest. There is a field service to ensure that product is acceptable before harvest takes place. Farmers are paid a lower rate than obtains on the open market but are guaranteed the inputs for production and market for the end product. This thrust arose from the construction of a modern mechanized processing plant, capable of producing 6 800kg of fillet and 7 500kg of gutted and scaled fish per week. The farm's production could not fully utilize the plant's capacity hence the concept of contract farming came into being.

As the major producer of fingerlings and processed product, it is safe to say that the Broilers Group dominates the tilapia industry in Jamaica. Having an export company with a branch in Miami has also aided the drive to sell product not only in the USA but in Europe, particularly England and Switzerland. Due to the contractual arrangements with many farmers, the Jamaican market has seen a decline in the volume of fish available for wholesaling. This is particularly obvious at Easter when marine supplies are lowest.

The logistics of operating this system has meant that significant sums of money have been spent on developing the necessary infrastructure. Refrigerated trucks to deliver product both locally and to the airport for shipment, freezing facilities for storage of product, holding areas on farm to keep fish alive until time for processing and training of staff to handle machinery and observe international standards of hygeine. To export meant that work had to be done on the development of trade names, appropriate packaging had to be secured and external linkages put in place to protect the Jamaican interest abroad. One farm developed a relationship with a broker who saw to customs clearance, delivery of product and also dealt with collections. The other company used an existing overseas company it had established to market the product and provide all the required services inclusive of aquiring inputs for the farm operation.

The weakening of the Inland Fisheries Unit demanded that the Fish Farmers Association, whose birth had been encouraged by the Unit and which had been in existence for some time had to take on a more proactive role in marketing activities during the period before the contract farming system was initiated. Proposals for a central market were put to the Ministry of Agriculture to be located on a plot of land adjacent to the Research Station at Twickenham Park which was already known as the major tilapia outlet in the island. This was approved in 1989 but to date has still not been constructed. It was to be constructed so that the necessary amenities would be available for a fee and farmers would book space on given days for selling their crops. The market would be self sustaining and would cater to both wholesale and retail trades. There is still a loose grouping of growers selling at the old site near to the Inland Fisheries office.

Farmers outside of the major growing area in St. Catherine sought to create their own niche markets by heading into other towns instead of Kingston. This met with limited success at first but a number of farmers tried selling on the main highway and in the markets on specific days to develop clientele. Small fish vendors on motor bikes got into the picture by purchasing small amounts, using dry ice to preserve freshness and heading into the hills. The poorer rural folk, were offered a byproduct of the processing operations in Clarendon and St. Elizabeth which became a highly demanded item, that of fish heads, suitable for making soups among other dishes. This was sold in a minimum of two kilogram bags on processing days which ran for two to three days each week. This sought after item was sold cheaply allowing the vendors ability to sell and make a good profit. This sideline was born out of the need to dispose of the waste from the processing plants as there were no facilities in close proximity which could utilize it for other purposes. Another byproduct developed was a fish mince originally targetted to the restaurant trade for use as a base for fish stock. It soon became a fast seller to pet owners once put on the market.

Over the years, as the price of tilapia increased in tandem with inflation it was evident that a large segment of the society, if presented with cheaper fish products would purchase them. At Jamaican Aqualapia, mirror and grass carp and colossoma were grown along with the tilapia in smaller numbers. These fish grow to large sizes with fish as large as 20kg being found on occasion.

The presence of bones which did not conform to making a good fillet as well as the average size of 2.7 to 3.6 kg per fish saw the development of a market for steaks. The prices for these fish always trailed behind tilapia which was no longer being touted as the poor man's solution to his protein needs but as a fish fit to be served in the finest white table cloth restaurants. Unfortunately the breeding of these fish have since declined and availability has decreased markedly since 1991.

AQUARIUM FISH TRADE

A part of the industry which did not receive much attention until the 1990's is the production of ornamental fish for both local and export markets. Hobbyists have been producing several varieties of tropical fish in small backyard operations for many years and a few have outlets from which they supply the local market. There are a few producers who have being selling small quantities abroad mainly to Florida, Washington, New York and Canada. No official marketing effort was launched on their behalf as the Fisheries Division did not become interested in this form of production until after the tilapia project ended in the mid-1980's. Sales in this area have therefore been as a result of individual effort.

These farmers recently formed the Tropical Fish Farmers Association which has as one of its first duties the identification of all farmers and the determination of production capability. This forms the first organized attempt to approach the American market from a unified position. There are a number of institutions which are investigating the feasibility of large scale production of selected species for the international trade. Marketing effort is expected to be assisted by government agencies such as Jampro and the Jamaican embassies. With this new thrust some existing tilapia farmers are currently diversifying their operations to include tropical fish. This sector of the aquaculture industry is very competitive with the largest exporter being Singapore at US$45 million in 1992 followed by Hong Kong with $15.5 million and the USA at $15.3 million. The largest importers are the United States with $64 million followed by Japan with $43 million. From this region, the main producers are Colombia and Costa Rica.

FUTURE DIRECTION

The synergies that have developed within the JBG has allowed economies of scale to emerge and has made possible the expansion of the value added side of the industry. Two retail shops have been put in place which sell all items produced by the group including fish and shrimp to the public. A quality standard for processed product has emerged as a result of the export thrust.

Competitors entering the market at the upper end will therefore have to compete against internationally acceptable goods. This bodes well for the Jamaican market as it ensures that high quality products will reach the consumer. This quality standard however, will be difficult to maintain in the more informal segment of the market and the consumer's judgement will be called into play to judge acceptability.

The current situation in Jamaica is one of renewed interest in Aquaculture with other corporate entities investing in production for export. The Jamaica Agricultural Development Foundation is constructing a facility including a hatchery to produce marine shrimp and the Jamaica Flour Mills has constructed a hatchery for the production of post larvae for export, they will not be involved in growout operations. These entities have sought to get marketing information to guide the development of the projects and have based their ability to compete on regional capability, location and size of markets. Other persons are developing salt water facilities for production of tilapia which will increase the number of operations using this medium from the present one. Some individuals think that this will be an additional selling point for tilapia on the international market.

CREDIT ARRANGEMENTS

In tandem with the marketing thrust, farmers have had need for credit arrangements to be made for various aspects of the system. In the beginning, the Inland Fisheries Unit provided services to farmers at reduced rates to encourage pond construction and to facilitate stocking. As demand for fingerlings grew, the need for the Unit to generate income from its activities resulted in additional charges being placed on fingerling sales, transportation, rental of harvest equipment and bulldozer services. Arrangements were made with farmers with good reputations for payments to be made on sale of fish and before restocking. This facility gave farmers some breathing space as many of them had to buy feed from their own resources.

This system was an informal one and was flexible allowing farmers varying times to pay off their credit. The limitation was that this was done on a pond by pond basis so a farmer without other sources of cash would end up at times with some of his ponds empty if a series of low yields had resulted. This could not accommodate many farmers at the same as the officers had to monitor each farmer to make sure that things were progressing according to the accepted practices set down by the Unit.

In the early days when arrangements had been made with the AMC to buy product from the farmers, credit of thirty days was offered to them. The programme did not get far so an assessment of how this would have worked cannot be made. For small farmers however, there is a problem with systems which delay payment for harvested fish as this delays the ability to repay bank loans, restock and purchase feed unless there is a high level of trust which only develops with time. Farmers sometimes find themselves in positions where arrangements not to their liking have to be accepted so that fish can be removed as quickly as possible to minimize theft and likelihood of a pond crash.

These arrangements have in the past put farmers at a disadvantage, resulting in downtime thereby decreasing the number of crops per year and ultimately the productivity of the farm. Each segment of the sector has its own criteria for setting credit periods and this also proves difficult for farmers to handle. Credit for feed varied from one to two weeks for those who qualified, while others paid cash. In the latter instance there were incidences of persons using inferior material as feed as they did not have adequate cash flow to maintain proper feeding regimes. This was translated into poor yields, fish of lower quality and longer crop times.

Suppliers of fingerlings developed their own methods for payment ranging from percentage deposits on fish to be delivered in the future to payment a number of days after delivery. The dedicated hatcheries who developed ongoing stocking programmes with some farmers, offered credit specific to the relationship between supplier and client. Trust is important in this arrangement as both parties have to agree on the quality and quantity received.

Many farmers sold parts of each crop for cash but the more sophisticated who were able to, entered into credit arrangements with supermarkets, hotels and wholesalers. Large processors supplying the hotels and supermarkets found that payment schedules would often not be kept and fourteen day credit ended up being thirty day credit and sometimes more. This was especially evident in the slow parts of the tourist season. Persons had to be assigned in these companies with the specific function to sell product and follow up collections. Commission was paid to sales persons based on collections received.

Large distributors/wholesalers developed specific arrangements geared to suit their needs with persons who could supply the required quantities at the appropriate times. Some of these persons bought fish on a weekly basis resulting in arrangements where credit accounts were set up and payments made at regular intervals on the outstanding balance.

These persons sold fish islandwide and in turn made credit arrangements with their customers. These arrangements made for quicker disposal of harvested fish and allowed farmers to restock quickly.

Farmers who have loans with commercial institutions have payment schedules worked out which enable them to make payments on their loans coinciding with expected harvest schedules. This is important, as in most instances the first year of operation tend to be difficult. Depending on the crop and how well the animals are grown, first harvests can be four to six months after stocking. The expected yields can fluctuate significantly until a farmer has enough expertise to identify possible problems and put in place the necessary preventative measures. The financial institutions through their field officers keep abreast of any difficulties being experienced and can make recommendations to their offices on any provisions which should be made on behalf of the farmer.

The size of the operation determines the level of risk and consequently the flexibility of the loans officers. Farmers with good track records will find these institutions more amenable to modifying their programmes to assist with the development and sustainability of the enterprise. The current economic climate in Jamaica has curtailed some of this flexibility as the banks are hard pressed to maintain profitability. As a result, operations which have achieved a certain level of efficiency have been able to weather the storm, but those with problems, have found it difficult to get additional support which they can afford to keep farms operating at maximum capacity.

FUTURE TRENDS

Further development of marketing arrangements in the Jamaican arena will depend on the rate of development of production systems. This, in turn is dependent on the rate at which financing for these facilities can be obtained and the ability of financial institutions to maintain flexible loan programmes which can buffer some of the effects of the variable economic climate which is impacting Jamaican businesses. Emphasis will be placed on efficiency of production systems, quality of product and flexibility in processing capabilities to respond to consumer demand.

In the near future, the Jamaica Broilers Group is expected to remain the dominant marketing force. This arrangement is limited however, by the ability of the Group to provide fingerlings on a timely basis and at reasonaable cost to farmers. In order to expand, the Group will have to make significant investments in construction of additional hatchery faciliites, invest in training of new staff, purchase additional haulage wehicles for both fingerlings and harvested product and seek additional export markets. Prices paid by the company to farmers are diccted by the composition of its sales portfolio. Export prices are externally controlled and will fluctuate according to supply and demand and the niche market one occupies. Increased volumes of product are expected from other countries but aggressive promotion, adherence to quality and high visibility are expected to allow Jamaica to maintain market share.

It is likely that the other entrepreneurs involved in finkerling production will continue to supply limited quantities to the market but will not significantly increase their production capabilities. New, large farms will once again have to include in their development plans, some hatchery capability as this will be the constraining factor in the production cycle. It is equally possible that other hatcheries will be developed in the island but which will not necessarily be geared to tilapia production or to local sales. For the industry to sustain itself, government, may have to intervene by promoting the viability of entering specific segments of the market and provide incentives geared to the production of seedstock.

There is room in the local market for additional supplies of aquatic products as the marine catch is unlikely to improve in the future and demand for product is increasing continuously. The tourism sector continues to grow on an annual basis, demanding more high quality product on a consistent basis. This presents an opportunity for eisting facilities to expand and for new ones to enter the market. However, even though a good track record has been established, the realities of the effect of naturla disasters, high interest rates, breakdown of synergistis relationships and shifts in market prefernece will affect future rate of growth.

Some entrepreneurs already in the business, have independently sought to add other organisms to the range of animlas being cultured. This has to be sanctioned by the Natural Resources Conservation Authority and the Fisheries Division. This trend is likely to continue as more species have commercial production systems developed. For the near future, however, Jamaica will continue to be mainly a producer of tilapia. The demand for newly developed strains with characteristics which improve productivity and marketability will increase. Private entities with the capability to import and breed these will have ompetitive edge over other farmers. Government needs to be aware of this and provide the Inland Fisheries Unit with the ability to maintain its research, development and breeding programme which acts as the conduit for new processes and stock to be made available to smaller farmers.

The construction of two marine shrimp hatcheries and one growout facility with projected startup time of late 1996 has the possibility to act as a catalyst in introducing another marine culture species to add to oyster and tilapia culture (sea water cages and tanks) which are already being done. Emphasis will be placd on maintenance of disease free stock which ensures pride of place internationally with shrimp farmers. Success in this area has the potential of attracting further invetment in hatchery construction.

Development of the aquarium fish sector as a major foreign exchange earner is currently being explored. Some of the existing fish farmers have already diversified into this area but have yet to make an impact on the market. There are seven entities wich can be regarded as commercial producers and of those approximately fifty percent have exporting experience. Having established aquaculture as a viable entity, promoting this area is not expected to be as difficult. Provision of loans and credit arrangemnts which are geared to its idiosyncracies need to be examined as there are differences between this and tilapia production. Marketing even though on a year rund basis has a five month period in the US market after which supplies increase and competition drives prices down.

Government is currently developing a programme to encourage small backyard operations using a satellite concept which provides sock and collects fish for sorting and export. These persons will have access to specialized loans geared to the business and repayment will be scheduled according to production and sales schedules. The bulk of the production is not expected to come from these facilitie but will come from large entities. The expansion of the fish trade will have the effect of increasing the effect of aquaculture to earn foreign exchange and increase employment opportunities.

The need for credit arrangements specific to the trade apart from the government initiated programme will have to be addressed. The local industry is currently fully supplied hence the effort is fully export based. Payments on loans, production inputs and to management have to bear this in mind and be adjusted to take advantage of periods of high sales at premium prices and other periods. Suppliers for many of the inputs are foreign based. Ability to purchase at competitive prices and build ongoing relationships will increase when collective purchasing sytems come on stream through the collective satellite farm schemes. Credit is likely to be extended to these large farms which in turn will pass savings to the growers.

CONCLUSION

The development of aquaculture in Jamaica, has added to the landscape another economic activity in which all levels of the society can participate. Many changes have occurred as diverse participants enter the business. The demands on the financial sector has increased to accommodate its expansion. This is not only in the provision of capital funds for construction and production but for the development of value added components to the industry. This push has come mainly from the large companies involved but the spinoffs for the medium to small grower are evident in that effort can be directed to the business of production. This increased specialization is attracting more persons to enter the business who were wary of the hazards of marketing a still relatively new product.

The linkages which emerged with other businesses will be further cemented with further expansion of production capability. Available credit arrangements both formal and informal will have to change with the needs of the industry. To achieve this, existing channels of communication have to be improved to increase two way information flow. The providers of credit must be aware of the issues to guide their response.

Jamaica is embarking on an interesting period of development and the interests of all involved parties must be protected. Marketing capability of the country rests on those entities large enough to compete internationally but the producers hqve to recognize their importance in the overall scheme. The Jamaican reputation in developing an aquaculture industry in a relatively short time indicates that we are capable of dealing with the new challenges being presented by the global marketplace.

The Workshop on the Role of Financial Institutions in Strengthening National Fisheries Industries and Privatization of Fisheries Investment in Small Island Developing States was held in Port of Spain, Trinidad and Tobago, from 24 to 28 June 1996. The workshop was organized by the FAO Fishery Industries Division in cooperation with the FAO Regional Office for Latin America and the Caribbean (RLC). It was hosted by the Government of Trinidad and Tobago. The workshop was attended by 39 participants from 12 Caribbean countries and from regional organizations and development agencies. The participants represented national fisheries administrations, financial institutions, fishermen's associations, institutes and fisheries enterprises as well as bilateral and multilateral development agencies. The main issues addressed by the workshop include the privatization of fisheries enterprises; better utilization, innovative processing and marketing of aquatic products; the introduction of fisheries management measures and related activities such as the restructuring of fishing fleets; the diversification of fishing effort; the creation of alternative employment opportunities; the development of aquaculture; and the introduction of appropriate credit support services.

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